



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>



3 3433 06273920 0





VHCA
British
Columbia
Vancouver

ANNUAL REPORT
OF THE
MINISTER OF MINES
FOR THE
YEAR ENDING 31st DECEMBER,
1874,
BEING AN ACCOUNT OF
MINING OPERATIONS FOR GOLD, COAL, AND SILVER
IN THE PROVINCE OF
BRITISH COLUMBIA.

HON. JOHN ASH,

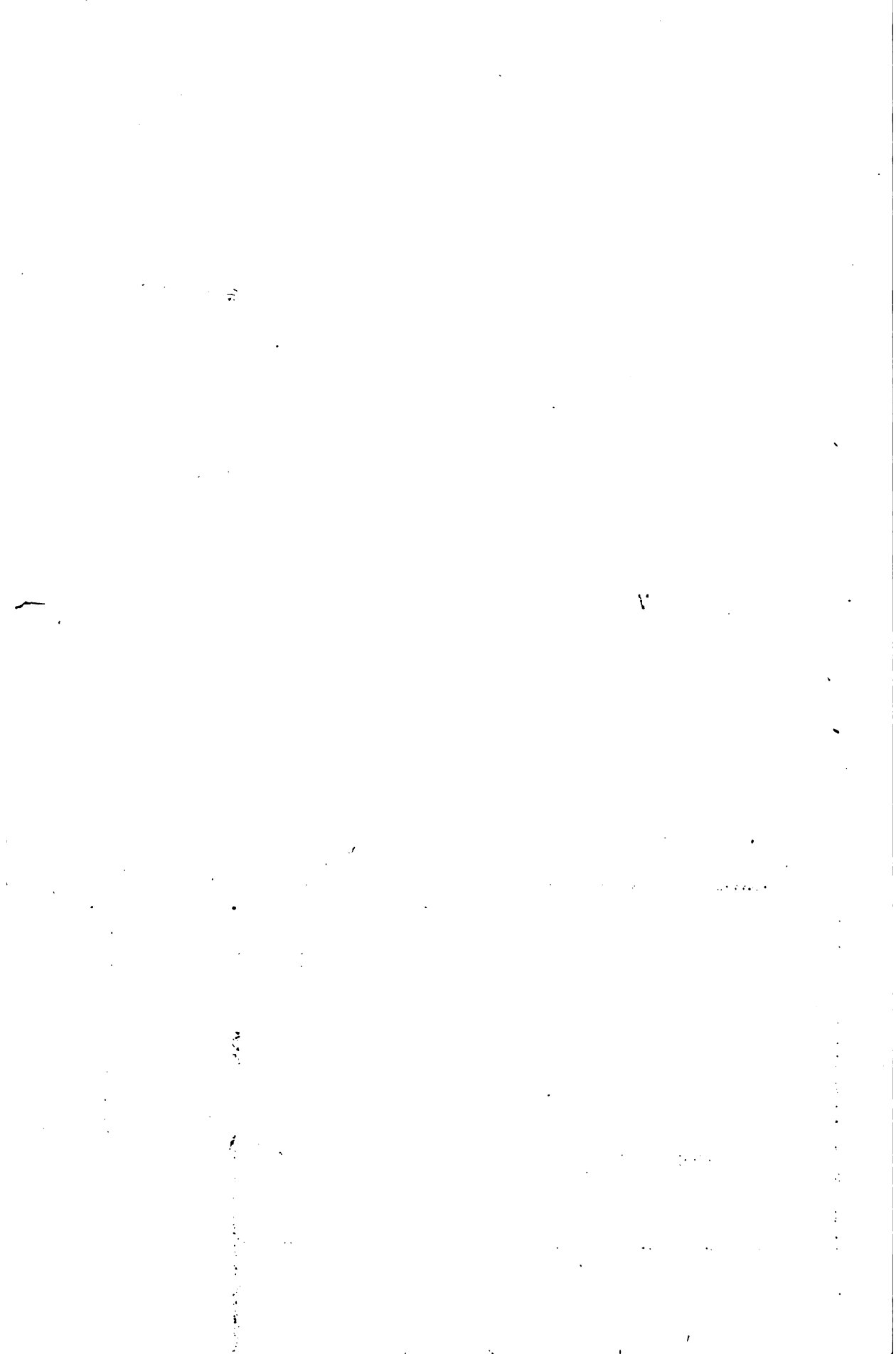
Provincial Secretary and Minister of Mines.

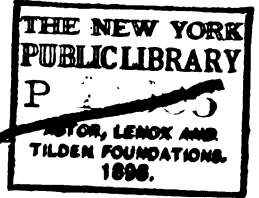
MR. CHARLES GOOD,

Deputy Provincial Secretary and Minister of Mines.



VICTORIA:
PRINTED BY RICHARD WOLFENDEN, GOVERNMENT PRINTER,
AT THE GOVERNMENT PRINTING OFFICE, BAKER'S HALL,
1875.





ANNUAL REPORT
OF THE
MINISTER OF MINES
FOR THE
YEAR ENDING 31ST DECEMBER,
1874,
BEING AN ACCOUNT OF
MINING OPERATIONS FOR GOLD, COAL, AND SILVER
IN THE PROVINCE OF
BRITISH COLUMBIA.

HON. JOHN ASH,
Provincial Secretary and Minister of Mines.

MR. CHARLES GOOD,
Deputy Provincial Secretary and Minister of Mines.



VICTORIA:
PRINTED BY RICHARD WOLFENDEN, GOVERNMENT PRINTER,
AT THE GOVERNMENT PRINTING OFFICE, JAMES' BAY.

1875.

GOV L SEC
AKH

THE NEW YORK
PUBLIC LIBRARY
777972 A
ASTOR, LENOX AND
TILDEN FOUNDATIONS
R 1935 L

REPORT OF THE MINISTER OF MINES

FOR THE YEAR 1874.

To His Excellency JOSEPH W. TRUTCH, Lieutenant-Governor of the Province of British Columbia.

MAY IT PLEASE YOUR EXCELLENCY:—

Having been appointed Minister of Mines, under the provisions of the "Minister of Mines Act, 1874," and being charged with the duty of collecting information on the subject of the Mining industries of the Province; I have therefore the honor, herewith, to present to Your Excellency this, the first Report.

All of which is respectfully submitted.

I have the honor to be,

Your Excellency's obedient Servant,

JOHN ASH,

Provincial Secretary & Minister of Mines.

March 8th, 1874.

REPORT.

Productive mining in British Columbia is, at the present time, restricted to mining for gold in many widely separated districts of the Province; and to mining for bituminous coal, which is confined to Nanaimo and its immediate vicinity.

The indications of the existence of other metals and minerals of great economic value are frequent throughout the country, and in some localities they have been thought sufficient to justify mining operations, which after the expenditure of large sums of money have been suspended or even abandoned for various reasons, among which difficulty of communication stands first.

GOLD MINING.

The gold fields of British Columbia, at present known, extend from Rock Creek on the 49th to Liard River on the 60th parallel of north latitude, a distance of seven hundred miles. The gold is chiefly found on the slopes of a range of mountains, lying between the Rocky Mountains on the east, and the Cascade Range on the west, and known as the Selkirk Range, embracing an area of 105,000 square miles. Gold has been found, and profitably worked, in different fields throughout the whole of the area in question: such as Similkameen, Rock Creek, and Kootenay (between the 49th and 50th parallels); Hope, Yale, Lytton, Lillooet, Bridge River, and the Big Bend of Columbia River (between 50° and 52°); Cariboo, Quesnelle, Keithley, and Harvey (between 52° and 54°); Omineca and the Peace River mines, with Skeena and Naas Rivers (between 54° and 56°); and, finally, Stickeen River and the last discovered and rich mines at Cassiar and Liard River (between 56° and 60°).

The tabulated statement hereto appended, which has been prepared from the Returns received from the Government Agents at the various mining camps, gives some idea of the number of miners employed, their earnings, the value of the gold found in different localities, the total amount realized, the works in operation, the machinery in use, and other interesting and useful information.

The gold deposits of British Columbia are found on bars, left bare by falling streams; in the beds and banks of rivers; on benches, high above water level; in gulches; and far down beneath the surface of the ground, in the beds of ancient water-courses.

The gold is collected both by rocker and sluice-box, and steam and water power is brought to bear on its production.

The gold of different localities is very different in aspect and value; sometimes it is in round jagged pieces; sometimes in even scales; sometimes in smooth oblongs like melon seeds; sometimes in coarse rough lumps. Its color is as variable as its shape, some being an iron rust color, some pale silvery, some glittering yellow, and some bronze green; while its value varies, with locality, from fifteen to eighteen dollars an ounce.

On the bars near the mouths of rivers it is found in a fine impalpable dust, known as "flour gold," and can only be collected by the aid of quicksilver. As the head-waters of the streams are reached, the original matrix of the gold is approached, and the gold becomes larger and less water-worn, till the veins of quartz, from which it is supposed to have been originally disintegrated, may be traced up the sides of the steep mountain precipices, whence the streams have their source.

The earliest discoveries of gold in British Columbia were on the bars and benches of the Fraser River, extending from below Hope to Lillooet; on Bridge River, which empties into the Fraser above Lillooet; and on the Thompson, which joins the Fraser at Lytton. Considerable quantities of gold were taken out in 1859-60, from these localities, and soon afterwards discoveries of great value were made on Williams Creek, in the district now known as Cariboo, at a distance of 350 miles from the original diggings; while to the east, discoveries were reported on the Similkameen River, at Rock Creek, and in Kootenay.

Cariboo soon became the centre of attraction; deep diggings of immense value were discovered, and miners from all parts of the Province left diggings where they were making a certain livelihood, on the chance of participating in large strikes of which they had only heard.

Cariboo has, up to the present time, maintained its supremacy, and the yield of four claims alone, on Lightning Creek, have amounted, in 1874, to \$479,980.

In 1865-66, great excitement was created by the discovery of gold, in paying quantities, on the Bend of the Columbia, known as the "Big Bend Excitement." Miners from all parts flocked in considerable numbers to the new locality; steamers were built; and roads, at great expense, opened to encourage traffic; but before twelve months had expired, Big Bend was deserted, and new discoveries on the Findlay Branch of the Peace River, in the district now known as Omineca, claimed the attention of the wandering miner. Again, expensive trails, routes, and roads were opened; and it was publicly declared, and confidently believed, that the veritable El Dorado had at last been discovered. Three years' persevering work has proved that gold, in no inconsiderable quantities, exists in Omineca, but the original promise of the district has not yet been realized. At this juncture, a rumour became rife of new and important discoveries on the extreme northern confines of the Province, at or about the 60th parallel of north latitude. These diggings, known as the Cassiar Mines, are situate on Dease and Thibert Creeks, feeders of Dease Lake, and on the affluents of Dease River, into which the lake empties. They can be reached at moderate cost, from Victoria, by the following route: Ocean steamer to the mouth of the Stickeen River; thence by river steamer or canoe to the head of navigation; 80 miles of land travel follow, and the miner arrives at Dease Lake,—the scene of the latest gold discoveries in British Columbia.

The work and discoveries in this district, in 1874, have been eminently successful and satisfactory. Several new creeks, of equal value with the original discoveries, have been struck; and the individual yield of gold has rarely, in the first year of a new field, been exceeded. Hardly any of the miners, who visited Cassiar and remained there for the season, returned "broken;" while the experience of all former strikes has been, that the many have returned unfortunate, while the few have realized fortunes.

The number of miners employed in British Columbia, as estimated from the Returns embodied in the tabulated form herewith, is Whites, 2,248; Chinese, 620; or a total of 2,868.

With regard to the actual annual yield of gold, as this is the first time that any attempt has been made in the history of the Province to collect mining statistics, numerous obstacles have prevented full information being obtained, foremost among which is the disinclination on the part of the miner, both white and Chinese, to furnish information which might be relied upon, the prevalent idea being that such information can only be sought with the view of imposing some new tax.

The gold exported by Banks, as will be seen from the following Return, amounted in 1874 to \$1,383,464; if, however, one-third more be allowed for gold exported by private hands, a very low estimate considering that none of the Rock Creek or Kootenay gold reaches Victoria, the total yield of gold amounts to \$1,844,618.

GOLD EXPORTS IN 1874, EXCLUSIVE OF EXPORTS IN PRIVATE HANDS.

Bank of British Columbia.....	\$741,984	21
Bank of British North America	435,894	60
F. Garesche	205,585	97
Total.....	\$1,383,464	78

Exports by Banks in 1873.....	\$	799,113	00
Do. do. 1872.....		1,208,228	00

It is satisfactory to note an increase, in favor of 1874, of \$409,115, mainly traceable, no doubt, to the opening of the Cassiar Mines.

Cariboo.

The most extensive and costly workings in operation, in the Province, are at Cariboo; here there are 5 steam engines, 27 water-wheels, 13 tunnels, 63 shafts, 43 hydraulics, 23 ground sluices. The miners employed, number over 1,000; and the estimated yield of gold amounts to \$700,000.

This district embraces an area of some 7,000 square miles; and occupies an elevation varying from 2,000 to 5,000 feet above the surface of the sea, between the 52° and 54° of north latitude; and is bounded on the south and south-west by the Quesnel Lake and River; on the west, north, and east by the Fraser River, which here bends back suddenly, almost parallel to its original course.

It includes the well-known Williams, Lightning, Grouse, Van Winkle, Otter, Cunningham, Musquito, Stanley, Peterson, Davis, Nelson, Chisholm, Burns, Antler, Keithley, Harvey, and Snow-shoe Creeks; Lowhee and Stouts Gulches; Swift, Cottonwood, and Quesnel Rivers.

It is impossible to estimate correctly the amount of gold that has been taken out of Williams Creek during the last ten years.

But the annexed Return of the yield of a few of the claims at Cariboo in 1861-2 3-4, will serve to illustrate the enormous value of the gold deposits of that District. Antler Creek in 1861, for some time, yielded \$10,000 a day. \$1,000 was taken out of a sluice box for one day's work, Steel's claim on Williams Creek, gave a maximum yield of 409 ounces, or \$6,524 a day. Over \$100,000 was taken out of this claim of 80 feet by 25.

In 1862, the highest amount taken out by any one company in 24 hours, was \$9,050. This was from the Cunningham claim on Williams Creek, which realized at the rate of nearly \$2,000 a day for the season; on several days as much as fifty two pounds weight of gold was taken out.

The Adam's claim yielded to each of its three partners \$40,000 clear of expenses.

In the Barker claim, eight partners realized \$7,000 each.

These claims were above the cañon. In 1863 three claims below the cañon yielded \$300,000.

In 1863, Dillon's claim yielded in one day the extraordinary sum of 102 pounds of gold—\$20,000.

In 1864, many of the above claims continued to pay as well as before. On Conklin's gulch, a discovery of this year, the Erricson claim yielded from 400 to 500 ounces a day.

The Butcher claim on Lightning 350 ounces a day; the Aurora, from 300 to 600 ounces; the Caledonia, 300 ounces a day; and the Wake-up Jake, 150 ounces.

These few returns are merely given to illustrate the wealth of Cariboo, and in no way describe the amount of gold taken out over the whole district, but only from a few claims selected for illustration.

Van Winkle and Lightning are now attracting considerable attention. The claims below mentioned have turned out in 1874 the amount of gold set opposite each claim respectively:—

Vancouver	\$150,000
Victoria	167,441
Van Winkle	141,000
Vulcan	21,539

These rich deposits have been invariably found on what is known as the bed-rock, at a depth of 60 to 80 feet from the surface, and in the channels or beds of ancient water-courses.

It is necessary to give some slight description of two works of some importance which have been undertaken at Cariboo, and on which a good deal of the success of the mining on Williams Creek depends. These are the Bed-rock Drain, and the Bed-rock Flume.

THE BED ROCK DRAIN.

The drain is intended to pass as near the bed-rock as possible, in deep claims, and thus to enable miners to drain the water from their claims, without having recourse to expensive pumping machinery.

The drain is therefore a tunnel, about 60 feet from the surface, strongly timbered, 4 feet wide and 5½ feet high in the clear, into which the water from each claim it passes through runs. The magnitude of such a work can be easily estimated from its length, which is about 1½ miles: commencing at the Foster-Campbell claim, at the lower end of the cañon on Williams Creek, about 1,000 feet above Barkerville, and terminating in Valley Creek, about 1,000 feet below Marysville, where it runs into the meadows. This tunnel drains fully half a mile of ground, the claims through which it passes paying an assessment. It is to be regretted, however, that the original cost of the work—some \$100,000—has not yet been realized by the enterprising projectors.

THE BED ROCK FLUME.

The Flume is a work of still greater magnitude and cost. This is situated higher up the creek, and was built with a view of receiving the tailings and collecting the escaped gold from the claims through which it passed, as well as for working by hydraulics a tract of ground acquired by the company on the upper end of Williams Creek.

The Flume commences 1,000 feet above the drain, at the upper end of the cañon, and is about one mile in length; the present head being about half a mile above Richfield.

The Flume is also intended to run as near the bed-rock as possible, but is built in the open and not in a tunnel. It is 36 inches square, built of 6 inch plank at the sides, and 2 inch plank at the bottom, on strong sills, with side stanchions; on the bottom are laid pieces of wood, 6 inches thick, on end, the grain of the wood thus resisting the wear and tear better than flat wood, which would soon be torn to pieces. The gold, uncollected by the flumes of the various claims through which the Bed-rock Flume passes, finds its way into the flume, and is caught in the crevices of the end wood, as well as in two sets of the customary riffles. The company wash up twice a year, but the results have not as yet been large enough to remunerate the original outlay, which may be estimated at \$250,000; the great expense having been incurred in cutting through bed-rock, it having for its whole length passed through an average of rock 5 feet deep and 8 feet wide, the flume being for a considerable part of its length double. It is carried along at an average depth of 20 feet from the surface of the ground.

The results to the company from working their own ground into the flume have been more satisfactory than the results of catching the escaped gold from other claims; and as they have a considerable amount of ground yet to work, the undertaking may yet prove a success.

THE MEADOWS.

At the end of the cañon, on Williams Creek, the hill sides recede suddenly, leaving an open space which is commonly called "the meadows." In the early days of Cariboo, several efforts were made to prospect this locality, it being generally supposed that a perfect mine of wealth must be hidden in the lower ancient channels under the superincumbent meadows; but all these efforts failed, on account of the absence of sufficient means for clearing the mine of water. In 1870, a company was formed in San Francisco to work the "meadows," and a grant of five miles in length was conceded, in consideration of the guarantee of the company to put up machinery and pumps sufficiently powerful to clear the shafts of water, and permit work to be carried on.

This company, known as the Lane & Kurtz Company, proceeded energetically to work, and commenced with a large shaft, 8 by 4 feet wide, and 120 feet in depth, divided, and strongly timbered, with two 10 inch pumps. It was soon found, however, that the volume of water to be overcome was greater than these pumps could clear. Two 12 inch wooden pumps and, subsequently, two 13 inch were added; the combined effort of steam power and water wheels forcing up 1,600 gallons of water a minute,—a volume probably larger than that of Williams Creek. This power served to clear the mine of water (which has also been effected by a new, submerged, steam pump) and enabled the company to drift from the bottom of their tunnel, at immense cost, for a distance of 180 feet, with an 8 feet square passage across the meadows. It was, however, soon found that the drift was not deep enough; and when they had passed through the rock, and come upon the gravel, they had not reached the channel in which the gold is presumed to be. It now remains for them, either to sink another shaft from the end of their present drift, or to tunnel on till they reach the rim rock, i.e., where the rock rises in its upward course from the channel on the opposite side, and then commence a new shaft from the surface, necessarily a costly undertaking.

It is very much to be hoped that success will finally crown the efforts of these most energetic searchers after wealth, they having already expended from \$150,000 to \$175,000 in the undertaking.

Omineca.

In a N. E. direction from Cariboo, and just N. of the 55th parallel of N. latitude, are situated the mines of Omineca, so called from the river of that name, on which they are situated, being a tributary of the Findlay branch of the Peace River, which empties into the Mackenzie River, and thence reaches the Frozen Ocean.

It will be observed, that these mines are situated on the north-eastern watershed of the great gold range, which traverses the Province in a direction from north-west to south-east, between the Coast Range and the Rocky Mountains, while Cariboo is on the western slope, all the water of that district draining into the Fraser River, which falls into the Pacific.

Although mining is still carried on to a considerable extent, the great promise held out by the Omineca Mines has not been fulfilled.

There are, at present, about sixty claims being worked by eighty men; there are two tunnels, forty-five ground sluices, and three hydraulics. It is estimated that the gold taken out in 1874 amounted to \$80,000.

Mining is chiefly confined to two creeks—Manson and Germansen.

There are two methods of reaching this district, one by taking the main trunk wagon road to Quesnelmouth, thence by trail to Fort Fraser on the Nechaco River, and thence by water and land carriage respectively, on Stewart, Tremble, and Tatla Lakes and the portages between them; or, by taking steamer from Victoria to the mouth of the Skeena River, and thence by canoe and land travel to Fort Stager on the Babine River, thence by the Frying-pan Pass to Tatla Landing on Tatla Lake, to which place the Omineca Mines are adjacent. Both routes are tedious and expensive, and it will be long before supplies are cheap at Omineca.

Cassiar.

The name Cassiar is given to a large tract of country in a north-west direction from Omineca, just south of the 60th parallel of north latitude, and lying on both sides of the Liard River (a branch of the Mackenzie River), and on the north-eastern watershed of the gold range before alluded to.

Gold was first discovered at a point near the confluence of this river with the Mackenzie River, but the mines now worked are on the head waters of the river on Dease Lake and Creek, which were first prospected by miners on their way to the original discoveries and proved sufficiently rich to deter them from travelling further. A branch of the Liard River, called the Deloire River (which here runs nearly due east) heading from the north-west, enters some 325 miles from Dease Lake, and excellent prospects have been discovered therein during 1874. In addition creeks called McDames', running into Dease River, and Quartz, running into the Liard River, both from the north, the one before and the other after the confluence of the Deloire, and McCullough's Bar, on the Liard River near the old Hudson Bay Company's Fort, have been discovered.

Mr. Gold Commissioner Sullivan, writing of these creeks, says :—

“MOUTH OF DEASE CREEK.

“13th June, 1874.

“SIR,—I have the honor to report my arrival here on the 10th of June, inst. I am pleased to say that the district is in a peaceful state. The miners here seem to be a law-abiding class, similar in fact to the Cariboo miners, a great many of whom partly compose the mining population of this section.

"Work on Dease and other creeks is retarded very much in consequence of the high water at present prevailing in the creeks of this district, and miners are busy taking out timbers for wing-dam purposes, so as to be ready when the water subsides to work their claims.

"From what I can learn, the pay on Dease Creek so far found averages, say, \$20 per day to the hand, and this creek has been partially prospected for a distance of nine miles, with good results. That Dease Creek is very rich, is the opinion of everyone here at present. The Neil-McArthur Co. took out, for five days' work, \$2,700. Two men in another claim, working with a rocker, took out 50 oz. for one day's work; and in another claim, out of one pan of dirt, \$49 was subtracted. The largest piece of gold so far found on Dease Creek weighed about 3 oz. 2 dwts. The miners who are able to work their ground have all obtained gold in paying quantities, and some have realized handsome amounts.

"Miners have not generally as favorable an opinion of Thibert Creek as of Dease, and seem to think it is "spotted," i. e. the lead of gold not continuous, and broken.

"There are several parties prospecting in outlying creeks, and miners seem sanguine that success will crown their efforts, as the country here is regarded by them, from its physical appearance and from the abundance of quartz and slate to be seen in the creeks and hills of this country, as a country rich in auriferous deposits.

"The white population, I imagine, must be about sixteen hundred, that is, now above the head of steamboat navigation in the Cassiar District.

"The distance from the present head of steamboat navigation to Dease Creek, I consider to be about 110 miles of trail and 17 miles by water (Dease Lake). There is good feed for horses and cattle in that part of the country through which the trail passes, also a good hard bottom and easy grade for making and completing the present trail which Mr. Moore is constructing from Telegraph Creek (16 miles above the present head of steamboat navigation) to the head of Dease Lake. I am of opinion that the trail must be continued to the steamboat landing, as goods must now be forwarded by canoes from that point to Telegraph Creek, and from thence transported by pack-animals to Dease Lake, so as to avoid the re-shipment to Telegraph Creek, now incumbent owing to the necessity of a trail.

"The Stickeen River, from the Hudson Bay Company's post, called the "Boundary Post," up to the present terminus for steamboats, is a very swift and dangerous current, and the class of steamboat at present on the river is not, in my opinion, adapted for such *dangerous* navigation. On my trip up by the "Hope," we were twice washed against the rocks and had the guards crushed at a place called "Triangle Rapids," steam pressure 138 lbs., and even with that force we were compelled to lay over for the night and land the principal part of the cargo. It was with great difficulty, even with a light cargo, that the vessel got through next day.

"Quite a large mining town is being rapidly erected here (Mouth of Dease Creek.)

"I enclose a list of prices current on Dease Creek.

" Wages : Laborers, per day.....	\$10 00
Mechanics, "	16 00
Flour, per lb.....	80
Beans, "	90
Bacon, "	1 00
Tea, "	2 00
Sugar, "	1 00
Tobacco "	2 00
Yeast Powder, per box	1 00
Butter, per lb.	2 00
Cheese, "	1 00
Gum Boots, per pair	20 00
Candles, per lb.	1 50
Soap, "	1 00
Beef, "	50 and 60
Fish, "	33½
Pickles, in bulk.....	3 00
Nails, per lb.	1 00
Salt, "	1 00
Brandy, per bottle	6 00"

"LAKE TOWN, CASSIAR, B. C.,
"21st July, 1874.

"SIR,—I have the honor to make the following report regarding the state of my District:—

"The present estimate of the *mining* population of this section is generally thought to be about (1,000) one thousand men; and to supply the wants of this number in provisions, tools, nails, and other necessities, as well as luxuries, such as liquors, there are only one hundred and ninety pack-animals to convey such goods from the head of navigation on the Stickeen River to the seat of the mining operations, a distance of about ninety miles.

"The exorbitant rate of 45 cents per lb. is at present the charge for packing in goods from Stickeen River to this place. The cost from Fort Wrangel to Glenora (the head of steamboat navigation), is \$80 per ton, and from Glenora to mouth of Telegraph Creek, where packing commences, \$30 per ton freighting. There is also a charge of \$20 per ton from head of Dease Lake to Dease Creek. Provisions are, consequently, very high, and therefore affect the future of the country by paralyzing the efforts that would otherwise be made to develop the auriferous sections of this District, while there are plenty of men here who lack employment.

"However, notwithstanding the high price of provisions, several men have gone out to prospect outlying creeks, and about forty men have gone down the Deloire River on a prospecting tour, taking with them two or three months' provisions. They were detached in seven parties, each party having a boat.

"A colored man named Henry McBean, got a very fair prospect on a creek which empties into the Deloire about 100 miles north of this; working with an Indian, he informed me that he got nearly \$60 in dust, the result of two days' work. He visited this creek for provisions and returned to the creek on which he said he discovered gold, he did not record any mining claims, giving as his reason for not doing so, the necessity of first finding out the most favorable place to locate claims on.

"Mining on Dease Creek is carried on vigorously; and I am pleased to report that the mines, so far, on which dams have been erected, are yielding very handsome results: The "Three to One" Co. returns from three to four ounces per day to each man; the "Caledonia" Co. from three to eight oz.; the "Lyon" Co., two and a half to eight oz.; the "Forest Rose" Co., three to four oz.; the "Wigg" Co., four to five oz.; the "Canadian" Co., four to five oz. The "Williscroft," "McArthur," "Baronovitch," "McKinnon," "Cargotich," and "Miller" Companies average per day to each man employed about five oz. The "Discovery" Co., for the last week's work, washed up 147 oz.; the "Three to One" Co., 127 oz., and the "McKinnon" Co., 200 oz. There are several other claims taking out fair pay; and I may safely say that two-thirds of the companies on the creek have not yet commenced washing, their wing-dams not having been erected.

"The claims on Thibert's Creek for a mile in length, near its mouth, are paying very well; similar, somewhat, in richness to the claims on Dease Creek; but the upper portion of Thibert's Creek is very spotted, and the lead of gold uncertain.

"Quite a number of men came up to this country and never made an effort to work, but camped at the mouth of Dease Creek, consumed some provisions, and then went down country, condemning (I learn) the Cassiar mines. There are yet too many men here for the quantity of provisions that can be supplied.

"I should have mentioned that some hill claims have been taken up on Dease Creek, which prospect very favorably."

"LAKE TOWN, CASSIAR, B. C.,
"27th August, 1874.

"SIR,—Relative to the Cassiar District I have the honor to report that the news from the miners who went down the Deloire River on a prospecting expedition is very cheering. I learn that a new creek has been discovered emptying into that river, now known as McDames' Creek. It is situated about one hundred and fifty miles from this, and the journey thereto by water can be made in about four days, the return trip taking five days.

"Mr. W. H. Smith, a member of the Discovery Company, on said creek, arrived here a few days ago and brought with him nearly six hundred dollars in gold dust, taken out

of his claim, the proceeds of a few days' work ; the average yield to the pan out of said claim, when first discovered, was from one to six dollars per pan, and a few companies that have commenced working are rewarded with fair results, but as timber is very scarce in that section mining operations are carried on in a very primitive mode and confined to bars and spurs as the miners have not had time to erect wing-dams for the effectual working of the deep ground or bed of the stream.

"I do not anticipate a large yield of gold from McDames' Creek this year as the cold season is fast approaching and it will be a difficult creek to work, owing to the scarcity of timber and the size of the creek, reported to be one-third larger than Dease Creek. There are about two hundred and fifty miners on the creek, and I have dispatched a special constable there to take charge of the records, etc. I will visit the creek personally at my earliest opportunity and report fully thereon.

"The mines on Dease Creek continue to pay well. The Discovery Co. washed up for the last two weeks' work 362 oz. and 236 oz. ; the Wigg Co., four men working, 156 oz. for last week's work ; the Perseverance, Giant, Williscroft, Baronovitch, Diamond, Water-Lilly, and McKinnon Companies are yielding largely. The other claims paying from \$10 to \$30 per day to the hand. There are, of course, as in all other mining districts a great many claims, where the lead of gold has not been found, and consequently many are disappointed. The claims on Thibert Creek are paying well, say from one ounce to three ounces per day to the hand.

"I may safely say that no mining district in this Province commenced its era as a proved auriferous section with such favorable auspices as the Cassiar District presents this year.

"Packing rates from Telegraph Creek to Dease Lake have moderated and the charge now per pound is twenty cents, consequently there is a slight reduction in the prices of goods, etc., here."

"LAKE TOWN, CASSIAR, B. C.,

"14th September, 1874.

"SIR,—I have the honor to report that a party of miners who went down last spring on the Dease and Liard Rivers on a prospecting tour have returned here, and inform me that they discovered some rich paying bars on the Liard or Deloire River, about three hundred and twenty-five miles from this in a North-easterly direction. One of the bars, named McCullough's Bar, pays per day to the rocker from one ounce to three ounces. The gold taken from the bars (a sample of which I have seen) is as fine as flour and collected by means of quicksilver. They also inform me that they obtained very good prospects from a creek emptying into the Liard River, the prospect found there being coarse gold. The creek is named Quartz Creek, and is situated about two hundred and sixty-five miles North-east of this, and about sixty miles South-west of McCullough's Bar.

"I have no doubt but that these gold fields will be visited next year by quite a large number of miners. McCullough's Bar, can be reached from this, travelling in boats laden with provisions in twelve days, the return trip with empty boats taking some twenty-two days. The river navigation is on the whole good, with the exception of some four miles of portage made near the mouth of Muddy River."

"LAKE TOWN, CASSIAR, B. C.,

"14th October, 1874.

"SIR,—I have the honor to report that I visited McDame's Creek on the 19th of September last, for the purpose of settling some mining disputes and other matters, as well also to report personally with regard to that portion of this District.

"The journey from Dease Creek to the mouth of McDame's Creek I made in two days and a half in a small boat, with a crew of only Mr. White, of the Hudson Bay Co.'s service, and an Indian.

"The navigation to McDame's Creek is very good for small boats, with the exception of one or two riffles and jams of drift wood. The current is regular, and from the mouth of Kletch-u-lene River the stream widens out into quite a respectable course, say from thirty to sixty yards in width. The distance from Lake Town to McDame's Creek I estimate to be about one hundred miles.

"Mining on McDame's Creek commences at a point about sixteen miles from its mouth, and the results obtained so far by the companies that have been diligent in erecting wing-dams are very satisfactory. The Discovery Co., for the fortnight previous to my arrival, washed up 236 oz., and other five companies are doing nearly equally well. There are fifty men working there. A great drawback, however, to mining operations on that creek is the large body of water it carries, and the attendant difficulties in wing-damming it off. The working season there I think will be confined to the period between the 1st July and the 15th October, for working creek claims. Miners, generally, think very highly of the creek; and I imagine that probably about one hundred and fifty miners will work there next season.

"I met several men returning from the Liard and Deloire Rivers, and one party from Rapid River.

"The men who visited Deloire River seem to think highly of that country as a mining district, having discovered gold along the banks and on the tributaries of it. They informed me that they proceeded up the river some two hundred miles, and came within sight of François Lake, a large lake, which they describe as being one hundred miles long.

"The party who returned from Rapid River, report that they could not obtain gold on that river worthy of notice. They discovered a well-defined seam of coal some distance up it.

"Quite a number of miners have proceeded to Quartz Creek (alluded to in my letter of the 14th September) and Liard River, intending to winter there, and probably trap during the inclement weather.

"Dease River, for a distance of about twenty-five miles, flows in a North-east direction; it then takes a course very little North of East to McDame's Creek. I am informed that at its junction with the Deloire River (known then as the Liard River), it flows South of East to McCullough's Bar.

"I think there will be a larger mining population in this District during the ensuing season than there was this year, as provisions (it is to be presumed) will be cheaper, there being no serious obstacles to packing. That branch of business will, I am sure, attract the attention of many of the packers of British Columbia, heretofore cautious in venturing against imaginary reported difficulties.

"It is impossible to arrive at a proper estimate of the amount of gold taken out of the Cassiar mines this year, as miners are generally averse to disclose the yields of their respective claims. I think the general computation to be about \$1,000,000 in value."

"LAKE TOWN, CASSIAR,
"18th January, 1875.

"There are about forty-five men wintering here, about sixty on Deloire and Liard Rivers, and some twenty-five on the Stickeen, at Glenora and Telegraph Creek.

"There are only two mining companies working, namely:—The Larkin Co., and the Nip & Tuck Co., both hill claims, on Dease Creek, which average per day about fifteen dollars to each man employed. Others of the inhabitants here are sawing lumber for boat-building purposes during the ensuing Spring, when it is expected a rush to the Deloire and Liard country will take place. Up to the present date I have received no news from that section.

"We have had no mail communication since the 15th November, and not a newspaper since the 17th October. The want is sadly felt by the inhabitants here.

"The weather is, and has been, extremely cold, since the 10th November, as the register of the Thermometer (subjoined) will testify. As the Thermometer registers to only 32° below zero, I do not know what the extreme degree of cold experienced here was. Quicksilver, placed outside, was congealed for several days in succession. The fall of snow, so far, is inconsiderable, comparing it with the depth of snow usual at this season in Cariboo—about two feet only."

REGISTER OF THERMOMETER AT CASSIAR.

November 8th.....	10° above Zero.	December 9th.....	29° below Zero.
" 9th.....	9 " "	" 10th.....	25 " "
" 10th.....	2 below "	" 11th.....	3 above "
" 11th.....	1 " "	" 12th.....	12 below "
" 12th.....	3 " "	" 13th.....	10 " "
" 13th.....	8 " "	" 14th.....	3 " "
" 14th.....	9 " "	" 15th.....	10 " "
" 15th.....	15 " "	" 16th.....	12 " "
" 16th.....	17 " "	" 17th.....	7 " "
" 17th.....	15 " "	" 18th.....	12 above "
" 18th.....	3 " "	" 19th.....	15 " "
" 19th.....	7 above "	" 20th.....	15 " "
" 20th.....	15 " "	" 21st.....	10 " "
" 21st.....	1 below "	" 22nd.....	5 " "
" 22nd.....	5 " "	" 23rd.....	8 below "
" 23rd.....	10 " "	" 24th.....	23 " "
" 24th.....	10 " "	" 25th.....	20 " "
" 25th.....	19 " "	" 26th.....	6 " "
" 26th.....	22 " "	" 27th.....	8 above "
" 27th.....	25 " "	" 28th.....	8 " "
" 28th.....	20 " "	" 29th.....	5 " "
" 29th.....	12 " "	" 30th.....	10 " "
" 30th.....	0 at "	" 31st.....	31 below "
December 1st.....	3 above "	January 1st to 8th...	Mercury congealed.
" 2nd.....	3 " "	" 9th.....	22 below Zero.
" 3rd.....	10 " "	" 10th.....	22 " "
" 4th.....	11 " "	" 11th to 15th...	Mercury congealed.
" 5th.....	2 " "	" 16th.....	31 below Zero.
" 6th.....	0 at "	" 17th.....	32 " "
" 7th.....	12 above "	" 18th.....	32 " "
" 8th.....	6 below "		

It has been roughly estimated that 2,000 men visited these mines in 1874.

The route is to take steamer from Victoria to Wrangel, at the mouth of the Stickeen River, and thence by river steamer to Buck's Bar, the head of navigation on that river. From Buck's Bar, about 80 miles of land travel brings you to Dease Lake, on which the mines are situated. It will be seen at once that these mines are very accessible, even more so than Cariboo, and that when sufficient pack animals are placed on the route to allow of open competition, supplies can be laid down at very moderate rates.

Kootenay.

While the diggings at Cariboo, Omineca, and Cassiar occupy chiefly the attention of miners in this Province, and are undoubtedly those of most importance, it is necessary not to overlook the gold deposits lying along the Southern boundary of British Columbia, at Similkameen, Rock Creek, and Kootenay.

On the whole of the Similkameen River, gold in paying quantities has been discovered; and in 1861, before Cariboo was developed, a great deal of profitable mining took place, but the rumors of the richness of the Cariboo fields drew miners away who were steadily earning \$5 to \$7 a day; and this District is now practically deserted, and very few are aware that gold in paying quantities exists on this river.

Proceeding along the Forty-ninth Parallel, Eastward, the next mining camp is that of Rock Creek, where considerable amounts of gold have been and still are taken out; but I have to regret the absence of any returns of yield of gold or mining operations in progress for the present year.

On the South-eastern confines of the Province lies the District of Kootenay, comprising an area of about seven thousand square miles, and embracing the country watered by the river of that name, and the Big Bend of the Columbia River. This district is chiefly occupied by miners coming from the neighboring Territories of Washington, Idaho, and Montana, and has been always a favorite

field for American enterprise. Steady wages have always been obtained on the creeks there, the most important of which are Perry Creek and Wild Horse Creek.

It will be seen from the tabulated form, that the number of miners employed is one hundred and thirty two; eighty-two claims were recorded, and thirty-three regularly worked. The Agent there estimates the yield of gold for the year at \$50,000.

The Government, in 1874, authorized an expenditure to prospect some outlying sections, the results of which are thus referred to by the Government Agent there, Mr. C. Booth:—

“The prospecting operations carried on in the District this season have been a success. Kelly & Co. discovered small diggings on Palmer's Bar Creek, near the Monille River. The discovery is in itself of not much consequence, but the attention of miners is drawn thereby to that portion of the District, and prospecting is going on there this Winter. Price & Co. discovered a creek having its origin in the Selkirk Mountain Range, and emptying into the Columbia River at a distance of about two hundred miles from Horse Creek, where gold was found in any part for a distance of twenty miles from the mouth. The prospecting demonstrates that the creek is good for from *three to five* dollars per day per man. The discoverers report favorably of the country, having found gold in every stream they prospected. It is to be regretted that none of Price's prospecting party were experts in quartz, as they report the country literally full of large quartz ledges. It is perhaps worthy of note, that none of those men located any mining ground on Quartz Creek: the reason they assign is, that they hoped to find some rich spot, and that there is plenty of the kind of diggings above described. There is a company of seven men under the management of W. H. Morrow, Esq., J. P., organized for the purpose of prospecting deep ground on Wild Horse Creek, at a distance of seven miles from this office. The Government appropriation to this enterprise is \$551, which is swelled by private subscription to \$1,000 or thereabouts.”

Should any strike be made in Kootenay, even of moderate richness, doubtless a large population would soon flock thither, there being no difficulties in the travel, either on the British Columbia or American side, and the cost of living being moderate.

The total Mining Revenue of the Province for the year 1874, as far as it can be at present ascertained, amounts to \$19,206 63, divided into the following heads:—

Mining Receipts General	\$ 7,974 13
Free Miners' Certificates	11,232 50
	<hr/>
	\$19,206 63

As contrasted with the Mining Revenue of last year, which gave a total of \$11,652, an increase of \$7,573, or nearly 68 per cent. over last year is exhibited.

This increase may be mainly credited to the opening of the mines at Cassiar. The amount realized from Miners' Certificates bears out the estimate formed in the early part of the Report, as to the number of actual miners in the Province; the sum collected from Miners' Certificates, viz., \$11,232 50, divided by \$5, the amount of a certificate, giving a total of 2,246; the number as made up from the official returns being given at 2,179.

Before leaving the subject of the gold deposits of the Province, it is necessary to remark that in 1864, gold was discovered on the head waters of the Sooke River, which empties into the Straits of San Juan de Fuca, about twelve miles below Victoria. The district attracted considerable attention at the time, and from one hundred and fifty to two hundred thousand dollars worth of gold was taken out, chiefly by removing the surface soil and picking out the crevices of the rock on which the gold had been deposited. These diggings have, however, gradually been deserted, and are only now visited from time to time by stray parties of miners, chiefly Chinese.

Fair prospects of gold have been found from time to time on the banks of streams on the West Coast of Vancouver Island, to the north of the Sooke River, but not in sufficient quantities to pay for working.

Veins of quartz, containing gold, have been discovered in Cariboo and in the Big Bend mines, many of which have promised well, and considerable expense has been incurred in endeavoring to develop them, but hitherto without success. The era of quartz mining has not yet dawned on the Province.

A discovery of gold in quartz was made in 1852 on Queen Charlotte Island, a short account of which may be of interest.

A trading party, of the Hudson Bay Company, while in Englefield Harbor, on the West Coast of the Island discovered a seam of gold-bearing quartz of surpassing richness, in fact it may be said to have been a streak of fine gold, about 8 inches, imbedded in slate-rock. The party proceeded to blast out the vein, and at each blast the fragments of rock were hotly contested for by the Indians of the Island as well as the white party; the Indians, however, finally drove the Hudson Bay party away. Another Hudson Bay party subsequently returned to prospect the Island, and several expeditions were fitted out from Columbia River and San Francisco, which visited Queen Charlotte to search for gold, without any tangible results. This seam appears to have been an isolated one, and nothing of the kind has since been discovered, though many endeavors have been made to find further veins of auriferous quartz.

SILVER.

In almost every mining camp in British Columbia, from the earliest discoveries of gold in 1858 to the present time, pieces of virgin silver have been found among the gold found in washing the pay dirt, what led to the conclusion that valuable silver leads would eventually be found.

Silver ore was first discovered on the banks of the Fraser, near Hope, and a lead was opened, by tunnel, at a considerable outlay, but nothing of any importance resulted.

The next discovery of silver ore was at Cherry Creek, in the Okanagan District, where ore of almost fabulous richness was found. At present, however, every effort to discover a well-defined workable lead has been fruitless, the very heavy character of the timber and superincumbent brushwood and soil forming an almost insuperable obstacle to successful prospecting.

True veins of silver ore were, however, finally discovered about 1871 in the Cascade Mountain Range at Fort Hope, about 80 miles from the mouth of Fraser River, and six miles south of the town.

The first lead, called the Eureka mine, crops out about 5,000 feet above the river level, is well defined, four to seven feet in thickness and has been traced 3,000 feet. A tunnel has been driven in this lead for 190 feet. The ore is described as argentiferous gray copper, and has yielded under assay from \$20 to \$1,050 worth of silver to the ton.

During the time the above lead was being worked, another about three hundred feet distant was discovered. This lead is of a far more valuable character, and it is called the Van Bremer Mine.

The ore is described as chloride of silver, and has yielded under assay from \$25 to \$2,403 of silver per ton of rock. A quantity of the outcrop sold at San Francisco at \$420 per ton. The lead is distinctly traceable for half a mile.

Although a company has been formed for working these lodes, no works of any importance have been undertaken. It is, however, rumored that when the company have matured their plans, working of the lodes will be vigorously prosecuted.

COAL.

Leaving the gold and silver mines, the next subject that merits attention is the coal fields of the Province.

The coast of Vancouver Island, commencing from just north of Chemainus, on the east, round to Koskeemo Sound (with a small exception north of Comox, noted by Mr. Richardson, where the chrystalline rocks again rise to the surface), is bounded by a belt of carboniferous strata, composed of sandstones, shales, and coarse gravel-stone conglomerates, interspersed with valuable coal seams, which would appear from the fossils they contain to belong to the cretaceous era.

Merely noticing that coal has been discovered at Chemainus and on DeCourcy Islands, the important deposits in and near Nanaimo claim paramount attention.

Coal was first discovered by the Indians here in about 1854, and their discovery communicated to the Hudson Bay Company, who proceeded to work it till the year 1861, when they sold out to an English company, by whom it is now held.

As the present active operations in coal are confined to Nanaimo District, it would be worth while to reproduce in this paper the Report of Mr. James Richardson on this District, contained in the Report of Progress of the Geological Survey of Canada, under A. R. C. Selwyn, Esq., for 1871-72, which is as follows:—

“On the Strait of Georgia, at the entrance to Nanoose Harbour, a narrow strip of the brownish-gray sandstone, which belongs to the coal-measures, comes upon the coast at Blunden Point, and strikes along it in a south-easterly direction for six miles, resting on the crystalline series, and dipping north-easterly toward the strait at angles varying from two to fifteen degrees. Further on, these sink beneath the surface of the water, and, concealed by it, seem to turn the point bounding the north side of Departure Bay. In conformity with this they occupy a small island about 200 yards from the shore, just at the entrance of the bay, where they present the character of a conglomerate, the pebbles of which are siliceous, varying from a quarter of an inch to three inches in diameter, while the matrix holds a considerable quantity of carbonate of lime. These beds are interstratified with light drab sandstones, the whole having a thickness of forty feet; dip S. 8° E. < 17°.

“Bearing S. 88° W., three miles from the bight of Departure Bay, there being no exposures in the interval, occurs the Dunsmuir Coal Mine. In a part of the coal-bed, which had been covered with a few feet of clay, a trench six feet wide was being cut at the time of my visit, and had already been extended to fifty yards in a bearing N. 63° E. The thickness in this part was sometimes nine feet and sometimes, perhaps from denudation, reduced to seven feet. At the end of the distance the seam had become covered with about a foot of decomposing argillaceous shale, and was of its full measure, while all the way it rested upon a bed of light drab sandstone, which was quite horizontal.

“Proceeding from the commencement of the trench, in nearly the same bearing as before (S. 88° W.), the surface of the ground gradually rises above the base of the coal about twenty feet, and exhibits a mass of light gray conglomerate-sandstones, with pebbles derived from the crystalline rocks, varying in size up to an inch in diameter. The ground again falls about twenty feet, and in a distance of a little more than a quarter of a mile from the first coal exposure, we meet with a second. This, three or four years ago, was worked to the extent of several hundred tons; and I was informed by Mr. Dunsmuir that the seam is from four to seven feet thick, and like the other, it is so nearly horizontal that, being on the same level, it might readily be supposed to be identical with it; but, according to Mr. Dunsmuir, the one gives a red, and the other a white ash; moreover, the second one being nearer the run of the coal-measures, and upon strict examination appearing to slope towards it at the rate of about one degree, it may, from some slight increase of inclination in the interval between them, sink beneath it.”

• The Departure Bay Mines are now in full operation. The following Returns from the Managers illustrate the practical value of the seams:—

DEPARTURE BAY MINES, 1874.

Output of Coal for 12 months ending 31st Dec., 1874.	No. of tons on hand, 1st January, 1874.	No. of tons sold for home consumption.	No. of tons sold for exportation.	No. of tons unsold.
29,818 tons, 12 cwt.	2,429 tons, 8 cwt.	6,144 tons, 15 cwt.	23,719 tons.	2,384 tons, 5 cwt.
No. of hands employed.			Wages per day.	
Whites 73	Chinese 60	Indians 12	Whites \$2 to \$4	Chinese \$1 25 Indians \$1 25

(Signed) R. DUNSMUIR.

To continue Mr. Richardson's Report—

"Nanaimo Harbour is situated about three miles S. 25° E. from Departure Bay. A sound leads from the one to the other, on the south sides of which are Newcastle and Protection Islands; the latter so named from the shelter it affords to Nanaimo. The northern extremity of Newcastle Island bears a little east of south from the small island which has been mentioned at the entrance of Departure Bay, the distance between the two being about three-quarters of a mile. It presents bold cliffs to the water, which rise to heights of from 100 to 150 feet in some places, and are perpendicular, or even overhanging. These are composed of a coarse conglomerate rock, in which rounded masses of various sizes, up to a foot in diameter, consist of diorite, quartzite, and other hard materials, derived from the crystalline series. The breadth of the conglomerate was found to be about a quarter of a mile, and in the cliffs it nowhere shewed distinct stratification; but on the two sides of the island finer beds which succeed have a slope of nine degrees, conformable, in the direction of the dip, with those at the entrance of Departure Bay. The following ascending section, from the crystalline rocks on which it rests, may be constructed of the coal series in the vicinity:—

	Feet.
Brownish-gray sandstone, in beds of from six to eighteen inches, occasionally merging into impure limestone from the presence of calcareous remains of <i>Bryozoa</i> and <i>Aviculina</i> , such as in the band already described.....	30
Concealed under the water	35
Gray sandstones, with beds of fine conglomerate.....	40
Concealed under the water	35
Gray conglomerate, with siliceous pebbles, varying in size from a quarter of an inch to an inch, in a matrix of fine sand, and much carbonate of lime...	77
Concealed under the water, between Small Island and Newcastle Island.....	917
Brownish-gray coarse conglomerate, with rounded masses varying in size from a quarter of an inch to a foot in diameter, consisting of diorite, quartzite and other hard materials	211
Gray, fine-grained, thinly-laminated sandstone, separated into beds from half an inch to four inches thick by carbonaceous partings, showing remains of plants as well as of <i>Incoceramus</i>	37
Black argillaceous shale.....	4
Coal, clean and hard, with a cleavage oblique to the bedding, thin leaves of carbonate of lime filling the cleavage joints in some places; thickness from three and a half feet to.....	4
Concealed	24
Brownish-gray sandstone.....	5
Brownish-gray sandstone, holding sub-globular masses harder than the rest of the rock, from the presence of carbonate of lime, of from two to four feet in diameter, which stand out in relief on surfaces exposed to the beating of the sea waves.....	4
Brownish-gray or light drab sandstones, in beds of from six to eighteen inches, interstratified with bands of conglomerate with pebbles up to two inches in diameter	21
Brownish-gray sandstones with sub-globular masses, as before.....	3
Concealed	10
Coal, clean and hard, not seen, from the presence of water in the slope which has been opened on it, but said to be from three feet thick to.....	4
Concealed	17

	Feet.
Gray, thinnish-bedded sandstones, with fragmentary remains of the stems and leaves of plants.....	3
Gray, fine-grained sandstone, holding iron pyrites disseminated obscurely in small grains in the rock, which crumbles away on weathering	6
Gray, fine-grained and finely-laminated sandstones, separated into beds from an inch to a foot in thickness by the presence of thin carbonaceous partings..	4
Gray, fine-grained sandstone in one bed	5
Gray, fine-grained sandstone in one bed.....	4
Gray, fine-grained and finely-laminated sandstones, separated into beds from an inch to a foot thick by thin carbonaceous partings, and yielding excellent flag-stones; on some of the surfaces remains of plants are displayed...	12
Gray, fine-grained sandstone, which constitutes a good building stone in some places, and in others, from the decomposition of finely-disseminated iron pyrites, crumbles on weathering.....	16
Gray, fine-grained sandstone, in one bed yielding excellent building material..	10
	1538

"Both the coal-seams mentioned in the Newcastle section have been tested by openings. A slope was sunk in the upper one, upwards of a dozen years ago, to the extent, I was informed, of about one hundred and twenty yards, and coal shipped from it to Victoria. It seems to have been out of working for a considerable time; and the Vancouver Island Company are at present erecting a small steam-engine at the mouth of the slope for the purpose of bringing it into operation again; but when I was there, the slope was full of water. The lower seam is in actual working, a small steam-engine standing at the mouth of the slope to haul up the coal. Several schooners and steamers were supplied with coal from it while I was on the neighbouring coast, and several hundred tons were piled on the wharf at the time of my visit to the mine.

"The main working of the Vancouver Coal Company, however, is at Nanaimo, on a six-feet seam, about two miles south of the seams on Newcastle Island. Of the measures associated with this seam, Mr. John Bryden, the under-ground manager of the mine, has been so kind as to furnish me with the following descending section, the data for which, having been obtained from a vertical bore-hole, the thicknesses have been reduced by me to measurements perpendicular to the plane of the beds:—

	Feet.
Bluish-black argillaceous shale	11
Brownish or drab, coarse-grained sandstone, holding a few disseminated pebbles up to half an inch in diameter.....	11
Coal, clean and hard, holding thin leaves of carbonate of lime in the cleavage joints; the thickness varies from two and a half feet to	6
Brownish or drab, coarse-grained sandstone.....	65
Gray, fine-grained sandstone.....	75
Coal, associated with from two to three feet of bluish-black shale, the thickness both of the shale and coal being very irregular.....	7

175

"In the working of the upper seam on the slope, it has been found that the dip is N. 54° E., with a very regular inclination of sixteen degrees in the first 350 feet, increasing to seventy and eighty degrees in the succeeding 300 feet; the seam then suddenly rises and dips South-westerly at an angle of twelve degrees, on which it has been followed for sixty feet. There may possibly be some variation in the bearing of the dip in the steepest part.

"In a bearing S. 22° E., a little over a mile from the mouth of the slope, there is an exposure of coal on the coast, in which three or four seams of good coal, varying in thickness from a quarter of an inch to an inch, are interstratified in about four feet of black shale, resting on about sixty-three feet of light drab sandstone. The dip in the neighbourhood is N. 32° E. < 15°, gradually changing to S. 83° E. < 7°, in something less than a mile along the coast.

"Continuing in about the same bearing as before, S. 22° E., for about four miles, two seams of coal are said to occur on the Nanaimo River, about a mile up from the mouth, but I was not so fortunate as to ascertain their thickness or the distance between them. Another reported locality of coal is about a mile South from Dodd Narrows, which would be about four miles South-east from the previous one; but I could gain nothing satisfactory from my informant, of either the thickness or the character of the seam. How these reported seams are related to the Nanaimo coal-beds is uncertain.

They may not, however, be far removed from this horizon. On the outside of Dodd Narrows stands the Island of Gabriola. It has a length of ten by an average breadth of about three miles, and, judging from an examination across the strike at the North-west end, and along it on the South-west side, the rocks of the island seem to consist almost wholly of brownish-gray sandstone, sometimes becoming conglomerate, particularly on the South-west side. No coal-seams were observed to be associated with the strata. The dip on the outside of the island appears to be North-eastward, with an average inclination of about four degrees. But in Rocky Bay at the North end, towards the West side, there are evidences of a small undulation.

"The area, including all the coal-seams which have been already mentioned as belonging to the Nanaimo field, has a length from the Dunsmuir claim to the end of Gabriola Island of about sixteen miles, with an average breadth of about six miles. Its surface would then measure upwards of ninety square miles. In the remaining part of this basin, to the South-east, no important coal-seams, as far as I am aware, have as yet been met with. But little of the region is up to the present known, and there is every probability that the same seams will extend to it."

The operations in the Vancouver Coal Company's workings are fully illustrated by the annexed Return:—

VANCOUVER COAL MINE, 1874.

Output of Coal for 12 months ending 31st Dec., 1874.	No. of tons sold for home consumption.	No. of tons sold for exportation.	No. of tons on hand 1st January, 1874.	No. of tons unsold, including coal in stock, 1st Jan. '75.
51,728 4-5th tons.	18,878	32,319		5,065
No. of hands employed.			Wages per day.	
Whites 204	Chinese 61	Indians 19	Whites \$1 75 to \$3 75	Chinese \$1 12½ to \$1 25 Indians \$1 25 to \$1 50

Miners' earnings \$2 75 to \$5 a day.

Name of Mine, distance from water, &c. Nanaimo Colliery, situate at Nanaimo Town and at Newcastle Island. At former place, mine is rather over half a mile from wharf; at the latter, say 200 yards.

Value of Plant, Machinery, Railway, and Rolling Stock (not including Workshops, Stores and Dwellings) \$93,657.

Total depth of mines; average thickness of seams

Douglas Mine, 450 yards by slope; vertical depth below surface, 400 feet; seam, 4 feet average, perfectly clean. *Chase River Mine* (or seam), 290 feet deep by shaft; seam variable in thickness, 4 to 11 feet, but mixed with shale. *Newcastle Mine*, 240 yards by slope; vertical depth below surface, 90 feet; thickness of seam, 7 to 8 feet, intersected with bands of shale. *Fitzwilliam Mine*, Newcastle Island, 720 yards by slope; vertical depth below surface, 250 feet; thickness of seam (which is interrupted by a fault), 2½ feet to 5½ feet.

Number, horse-power, and kind of Engines at the Mines

On the surface, 1 horizontal pumping and winding engine, 45 horse-power; 1 beam winding and pumping engine, 22 horse-power; 1 horizontal engine, 90 horse-power, in reserve; 2 horizontal engines (coupled), each 10 horse power; 2 locomotives (1 in reserve), 10 and 12 horse-power; 3 steam winches, 5, 8, and 10 horse-power (1 in reserve). *In the Mines*, a 7 in. and a 4½ double-acting steam pump. *In Reserve*, a large patent steam pump, 20 inch steam cylinder, and 6½ inch water cylinder.

(Signed) M. BATE.

It will be seen from the above Returns, that the output of coal at Nanaimo for 1874, amounted to 81,547 tons 8 cwt., of which 25,022 tons 15 cwt. were used for home consumption, and 56,038 tons exported abroad. The actual amount disposed of for the year, was 81,060 tons 15 cwt., which, at a sale price of \$6 per ton, gives a gross return of \$486,360 per annum.

The number of miners employed is 277 whites, 121 Chinese, and 31 Indians. The wages are from \$2 to \$4 to whites, per day; \$1 to \$2 to Chinese and Indians.

The value of the plant, machinery, rolling-stock, &c., of the Vancouver Island Company amounts to \$93,657. No return of the value of plant, &c., of the Dunsmuir Coal Company has been received.

These returns show a steady increase in the development of the coal interests of the Province; and the early commencement of railway works will doubtless still further advance the coal workings.

North of Nanaimo, the coal strata disappear for some distance, but appear again in the Comox District, which may be said to extend from Qualicum River to Kookootherm Point, a distance of about forty miles. It will be satisfactory again to have recourse to Mr. Richardson's able Report, which comprises the information gathered in his survey in 1871 and 1872:—

"Leaving this place on the 17th October, 1871, I was conveyed by steamer as far as Nanaimo, on the south-west side of the strait, about seventy miles from Victoria, where coal has been worked for the last twenty years. A week was spent in the examination of the rocks of this vicinity, and I proceeded about seventy miles farther to Comox Harbor, near which several coal claims have been taken up within a year or two, reaching it on the 27th of October. Coal is known to occur sixteen miles still further along the coast, but it appeared to me that the season was too far advanced to render it prudent to go beyond Comox. I accordingly returned from there to Victoria, where I arrived on the 23rd of November, and after continuing my examinations in its vicinity until the 22nd of December, started on my return to Montreal.

COAL DEPOSITS.

"Coal-seams are known to exist in other parts of Vancouver Island, besides those already alluded to. They have been met with towards the north-western end, one locality being on the north-east side, near Fort Rupert, on Queen Charlotte Sound, another on Quatsino Sound, which opens on the south-west side into the Pacific; and there appears at present nothing to render it impossible that they may spread out in some places into the centre of the sound. But I shall here confine my remarks to those parts which I have visited on the Strait of Georgia. These appear to belong to a narrow trough, which may be said to extend from the vicinity of Cape Mudge on the north-west, and to approach to within fifteen miles of Victoria on the south-east, with a length of about 130 miles. It is occupied by a series of rocks which in some places present a rolling surface, with no elevations rising to a greater height than 800 or 1,000 feet, and in others is comparatively level. It possesses generally a good soil, and may hereafter be thickly settled. It is mostly covered with forest, but in some parts presents a prairie or park-like aspect, with grass-covered ground, studded with single trees or clumps of them, and offers great encouragement to agricultural industry.

"The north-east side of this trough lies beneath the waters of the Strait of Georgia, and on that side is bounded by crystalline rocks coming apparently from beneath it in Lasqueti, Texada and other islands, and on the mainland beyond; while on the south-west it occupies a strip along Vancouver Island, limited by a range of very bold mountains of the crystalline series, which runs nearly parallel with the coast, having points of from 4,000 to 7,000 feet above the sea. In the first or nearest ridge of these are Mount Washington, 5,410 feet, Beaufort Range, 4,900 and 5,420 feet, Mount Arrowsmith, 5,970 feet, and Mount Moriarty, 5,185 feet; while in the second ridge, farther in the country, is Alexandra Peak, 6,394 feet, and Mount Albert Edward, 6,963 feet.

"In the general trough, coal seams are exposed in upwards of a dozen different places, and in five distinct localities *claims* have been laid before the government by different companies. The most instructive exposure is one that occurs about five miles

(S. 63°W) from the shore on the south-west side of Comox harbor, on the claim of the Union Coal Mining Company.

"Here in an almost perpendicular cliff, which rises on the north side of a small brook, tributary to the Puntledge River, there occurs the following descending section, the coal seams in which I shall number in ascending order:

	Ft.	Ins.
Brownish or drab-colored, slightly calcareous sandstone, the grains of which are composed of quartz, feldspar and mica, with some of a black substance supposed to be peroxide of manganese, the beds being from one to five feet thick.....	45	0
Coal (No. 4), black and shining, apparently clean and free from shale.....	4	6
Brownish-black argillaceous shale and greenish-brown sandstone, interstratified with one another in thin layers, the shale predominating, and both holding thin, irregularly-disturbed, lenticular patches of coal, which may constitute about one-tenth of the mass; no indications of roots penetrating the upper part of the bed were observed.....	15	0
Coal (No. 3), apparently all of good quality.....	5	4
Brownish-gray or light drab sandstone, in beds of from one foot to eighteen inches.....	10	0
Coal (No. 2), apparently clean and of good quality.....	6	0
Brownish-gray or light drab sandstone, interstratified with thin layers of black soft, argillaceous shale.....	3	0
Coal (No. 1), without observed impurities.....	10	0
Total.....	98	10

"The dip of the measures in this part is N. 32° E. < 11°. The brook, which is, as already stated, a tributary of the Puntledge, runs north-westward, nearly on the strike, and at some height on the right bank, about 600 paces down the stream, a coal-bed of four feet and a half is exposed, which very probably corresponds with number 4 of the above section, and shows an apparent regularity in its course, and in the attitude of the measures, for at least that distance.

"None of the seams in this locality have yet been opened for productive working.

"The level of the brook where the seams are exposed, is about 500 feet above the sea, and the road will have a pretty even fall the whole of the way to it.

"Coal-seams, said to resemble those which have been described, occur at no very great distance in a north-western direction from the Union Claim.

"I was told also that still further to the north-west, the position being sixteen miles from Comox Harbor and close upon the coast, there is a four-foot coal-seam, but the weather prevented me from visiting it.

"About five and a half miles along the coast from Comox Harbor, in a general bearing about S. 28° E., there occurs a trail or path leading to what is called the Beaufort Coal Mine; the general bearing of the path being S. 80° W., and the distance from the coast a little over five and a half miles. Here, on the left side of a small stream called Bradley's Creek, there occurs a seam of good hard coal, measuring 3 feet 2 inches, and resting on two feet of soft black argillaceous shale, beneath which there are visible between five and six feet of brownish-gray sandstone, holding disseminated pebbles of quartz, feldspar, and diorite. The dip of the strata is here N. 27° E. < 18°, and Bradley's Creek, which, flowing north-eastward, ultimately gains Baynes Sound, at this place crosses the measures nearly at right angles.

"Proceeding down the stream, the coal-seam appears to be overlaid by a considerable thickness of sandstone, and, at the distance of about half a mile, another coal seam occurs, of which, from the quantity of water in the brook, no more than two inches were visible; while half a mile farther on, there are indications of still another seam. These two seams, from the quantity of water caused by recent heavy rains, were very imperfectly seen by me; but Henry Bradley, one of my men, who was one of the first discoverers of the seams on this claim, and was afterwards employed to ascertain their thickness, informed me that the two in question were from one to two feet each. He also informed me that about a mile and a half to the westward of the position where the lowest of the three seams is exposed, there occurs a fourth seam on the Trent River. The quantity of water prevailing, and the occurrence of an intervening swamp, prevented me from visiting this seam, but Bradley gives the thickness, as far as ascertained without reaching the bottom of it, as nine feet.

"The transverse distance in which these four seams occur appears thus to be upwards of two miles, while the four seams of the Union Claim, with a less apparent dip, would not occupy a greater breadth than 250 feet; and the strike of the latter would seem to place them considerably higher in the measures. If it should hereafter be ascertained that any of the seams of the two localities are identical with one another, it can only be through the occurrence of undulations or faults, of which we at present know nothing.

"Five miles along the coast, in a bearing S. 18° E. from the trail to the Perseverance Claim, a path runs inland, in general bearing S. 70° W., and leading, in a distance of a little over two miles, in a straight line, to the Baynes Sound Coal Mines. Here in a deep gorge, through which a small stream of water finds its way in its course to Fanny Bay on Baynes Sound, occurs the following descending section:—

	Ft.	Ins.
Brownish-gray or drab, moderately fine-grained sandstone, slightly calcareous, with scales of white mica, and in layers of from six inches to two feet, holding holding fragments of the stems and leaves of Plants	30	0
Coal, clear and hard	5	10
Brownish-gray or drab sandstone, in beds of from six inches to four feet thick, holding fragments of plants	48	0
Black, soft, argillaceous shale, with short thin lenticular patches of coal	5	0
Brownish-gray or drab sandstone, in beds of from six inches to two feet.....	5	6
Black, soft, argillaceous shale, with obscure impressions of plants	2	0
Coal, which appears to vary in its thickness, being in some parts not over five feet two inches, and in others seven feet, while the lower two feet shew occasionally thin seams of carbonaceous shale, with obscure impressions of plants, say.....	6	0
Brownish-gray or drab, moderately fine-grained, slightly calcareous sandstone, with scales of white mica.....	5	0
	107	4

"The dip of the strata is here N. 86°, E. < 15°, gradually increasing to 40°, and the two coal-seams are seen descending in both sides of the ravine, the edges of the lower one meet in the bottom of the stream, but while those of the upper one are still about twenty feet above the water, a fault occurs cutting them off. The underlie of the fault is S. 62° W., < 38°, and the dip of the strata on the other or eastward side of it is N. 64° E. < 43°. The strata on that side, after an interval in which seventy feet of the base are concealed, consist of seventy-two feet of brownish-gray sandstone, holding a few fragments of plants, overlaid by ten feet of black argillaceous shale. As these beds are not recognised on the west side of the dislocation, the amount of it, on the side on which the strata are thrown down, cannot be determined with certainty, unless a small mass of coal which is caught in the fault, and lies lower than the extremity of the upper seam, be derived from it. In that case the down-throw would be on the east side. In a position, which appears to be close to the east side of the fault, a shallow shaft has been sunk in search of the upper seam; it penetrates the measures on that side, but sandstone alone appears to have been excavated.

"The section which has been given above does not suggest any means of identifying the coal seams displayed in it with those of the previous localities. It may reasonably be supposed, however, that the whole of those described belong to the lower part of the measures, and the localities may each belong to a separate zone.

"From Qualicum River to North-west Bay, in a bearing about S. 75° E., there is a distance of about twenty miles in which no rock exposures were observed. Beyond this, masses of the crystalline series present themselves, continuing for fourteen miles in the same bearing, and separating what may be called the Comox field from one farther on; shewing that the general trough is divided into two distinct basins.

"The Comox basin would then have a length, between Cape Mudge and North-west Bay, of about sixty-four miles, but limiting it, for safety sake, and the probable occurrence of some thickness of unproductive measures at the base, to the distance between Kookooshun Point and Qualicum River, it may be safely called forty miles. The greatest breadth from the Beaufort Claim to a line in the run with the outside of Cape Lazo, or, as it is commonly called, Point Holmes, would be about thirteen miles, without taking into consideration what may be beyond under the water. But estimating the average breadth to be somewhat over seven miles, the productive area may safely be considered to hold about 300 square miles.

"The rule applied in the coal-field of South Wales in the United Kingdom, to calculate the productiveness of a coal-seam, gives 1,000 tons for every square foot in each acre of a seam one foot thick, leaving a sufficient quantity for pillars to support the roof. In the Union area, the total thickness of workable seams is a little over twenty-five feet. This would give 25,000 tons per acre, or 16,000,000 tons per square mile. In the Baynes Sound Mine, the quantity would be about 12,000 tons per acre, or per mile 7,680,000 tons. Not having seen the full thickness of all the seams on the Beaufort Claim, I shall not venture upon a calculation, but any one can easily make it for himself. To attempt a calculation of the productive yield of the whole field would be premature, before all the details of its structure have been ascertained, seeing that where the seams sink beyond a certain depth they can scarcely be profitably worked, and until all the seams have been discovered, the undulations determined, and the dips every where observed, how much or how little of the seams are in this condition cannot be known. For the facilities of trade, Comox Harbour would afford excellent accommodation to both the Union and the Beaufort Mines. The former being, as already stated, five miles from it, with a fall of about 500 feet, while the latter is about seven miles distant, with a fall of about 700 feet. Baynes Sound, with proper wharfage, might be made available at most places. It is in one place less distant from the Beaufort Mine than Comox, but the fall is not so even. Baynes Sound Mine is about 200 feet above the sea, and Fanny Bay on the Sound is about three miles south-east from it, while Deep Bay is about eight miles. Both of these harbours, though small, are safe, especially the latter, being thoroughly protected from all winds. The approaches to all the harbours named, as well as the harbours themselves, have a depth of from five to twelve fathoms at low water. The more southern division of the two, into which we have separated the general trough holding them both, may be called the Nanaimo Field or basin."

In his Report for 1878, Mr. Richardson thus further describes the Comox coal-field:—

"It is bounded on the south-west by the Beaufort Range of Mountains, on the north-east by the Strait of Georgia, and extending from Comox Harbor about twelve miles to the west, and about thirty miles to the south-east, includes Denman and Hornby Islands.

"Measurements of the coast-line from about three miles north-westward of Point Holmes were made round to the mouth of Courtenay River, which flows into Comox Harbour, and thence to Deep Bay, opposite the south-east end of Denman Island. Following all the sinuosities of the line, its length exceeded thirty-two miles. The coast was further examined on foot, without measurement, for about twelve miles beyond. But in the whole distance, measured and unmeasured, only two small exposures of rock, situated on the south side of Comox Harbour, were met with.

"Additional measurements were made up the Courtenay River and its tributary the Puntledge, to Puntledge Lake, making together about nine miles, as well as three miles up Brown's River, which flows into the Puntledge about five miles from the lake. The partial measurement of last year on the proposed line of tramway to the Union Mine (Report 1871-72, p. 76) was verified and continued to the coal-seam, the correct bearing and distance from the coast being S. 61° W., a little over five miles and a quarter. The Trent River (Ibid. p. 76) was measured as far up as its general bearing was at right angles to the strike of the measures, giving a distance of six miles in a straight line from the coast, and the measurement was continued nearly half a mile further, up a small tributary, to the crystalline rocks. Bradley's Creek joins the Trent on the right side, about three miles and a half from the coast, and this tributary was measured for about three and a half miles up. The River Sable, a small stream on Baynes Sound Claim, (Ibid. p. 78.) was measured for three miles up from Fanny Bay.

"From the exposures observed in these transverse measurements, and on the coast of Denman and Hornby Islands, has been ascertained all that I am enabled to give of the character and distribution of the coal-bearing rocks of the area in question. These rocks may be separated into seven divisions, which, in ascending order, may be referred to as follows:—

- A. *Productive Coal Measures.*
- B. *Lower Shales.*
- C. *Lower Conglomerate.*
- D. *Middle Shales.*
- E. *Middle Conglomerate.*
- F. *Upper Shales.*
- G. *Upper Conglomerate.*

DIVISION A.—*Productive Coal Measures.*

"The most westerly point examined is on Brown's River, about nine miles N. 82° W. from the court house or steamboat landing, on the north side of Comox Harbor. There is here a continuous exposure of the strata, occupying the bed of the stream for a mile and three-quarters in a straight line, with a bearing N. 84° E. It affords the following section in ascending order:—

SECTION 1.

	Ft. Ins.
<i>Coal</i> (1). Impure, and apparently in separated masses, of which two were observed on the strike in the breadth of the stream (between thirty-five and forty feet), one of them on the right, about five feet long and seven feet thick, and the other on the left, seven feet long and two feet thick, both terminating somewhat abruptly. They are from eight to ten feet apart, and carbonaceous shale with a pale brownish streak and argillaceous odour fills the interval between them, and seems to occupy the space in continuation beyond them.....	7 0
Brownish-gray, slightly calcareous sandstone, the grains of which are composed of quartz mingled with feldspar and a few scales of mica, as well as a greater number of small flakes of blackish argillaceous matter. The mass is divided into beds of from three inches to four feet in thickness; many of the latter show false-bedding, but would in general yield good building stone.....	132 0
<i>Coal</i> (2). Clean and bright.....	3 0
Brownish-gray sandstone as before.....	94 0
<i>Coal</i> (3). Clean and bright.....	2 3
Brownish-gray sandstone as before.....	23 0
Blackish argillaceous shale with a white streak, interstratified with thin seams of clean coal interlocking with one another.....	5 0
Brownish-gray sandstone as before.....	110 0
<i>Coal</i> (4). Clean and bright, varying in thickness from six inches to.....	1 0
Brownish-gray sandstone as before.....	92 0
<i>Coal</i> (5). Clean and bright.....	1 8
Black argillaceous shale with a white streak, and thin seams of coal.....	3 0
Brownish-gray sandstone.....	86 0
Black argillaceous shale, with thin patches of coal interlocking with one another	10 0
Light-gray, massive sandstone, in beds varying from two to ten feet, and showing little or no false-bedding.....	95 0
<i>Coal</i> (6). Good and clean	1 3
Black argillaceous shale.....	4 0
Light gray sandstone, similar to the last.....	28 0
Black argillaceous shale with a white streak, interstratified with thin patches of coal interlocking with one another, some of them an inch apart, and altogether making up from ten to twenty per cent. of the mass.....	3 0
<i>Coal</i> (7). Clean and good.....	1 8
Light-gray sandstone, similar to the last.....	27 0
<i>Coal</i> (8). Good and clean.....	6
Black argillaceous shale.....	1 3
<i>Coal</i> (9). Clean and bright.....	8
	739 6

"The thicknesses of the sandstones in the above section are reduced from horizontal measurements, at right angles to the strike; and the inclination is determined by the dips of the coal-seams and shales above and below the sandstones, so as to avoid errors from false-bedding. The dips vary in direction from E. 30° N. to E. 22° S., and the angles of inclination from 0° to 20°, with the exception of two or three in the middle of the distance, which are a little to the east of north, with an inclination of from 2° to 7°, and indicate an undulation or irregularity, for which a due allowance has been made.

"Though to the westward of this section, on Brown's River, a mile intervenes before the flank of Mount Beecher rises up to indicate the presence of the crystalline

rocks, they are yet supposed to be concealed by drift not very far off, on the west side of a shallow depression which appears to run east of south to an elbow in the Puntledge River. The distance to the elbow is about two miles, and to this point the upper stretch of the river flows in the same depression from the lake for a mile and a half. This depression marks the strike of the measures, and a rock supposed to belong to the crystalline series is seen in a rapid just below the outlet of the lake. The exposure, which does not exceed forty feet in length, consists of a brown-weathering igneous rock, showing, according to Mr. Harrington, when sliced and examined under the microscope, both a concretionary and a porphyritic structure, with disseminated crystals, which appear to be feldspar, while the concretions are composed of two minerals which exhibit a radiating structure. When treated with an acid, the rock assumes a light gray color, from the removal of the oxide of iron.

"There is not much doubt that the base of the productive measures, though not seen, immediately overlies this, while the summit is displayed on the Puntledge, about a mile and a quarter below the elbow, showing that to be the direct breadth of Division A on this stream. The summit on the Puntledge is due south of the same horizon on Brown's River, and about a mile and a half from it. The details of the division in the Puntledge, however, are by no means well exposed, and none of the coal-seams are visible. This may be called Section 2, though a very imperfect one.

"From the outlet of Puntledge Lake, a bearing of S. 48° E. strikes the extremity of the line of the proposed tramway to the Union Mine, on the south side of the lake, and about a mile from it, the whole distance being about two miles and three-quarters. A section occurring at this mine in an almost perpendicular cliff, from the face of which a landslide had carried away all the trees and loose soil on the north side of a small stream flowing into the Puntledge Lake, was given in last year's Report (Report of Progress 1871-72, p. 77). But most parts of the cliff being out of reach, the thickness of many of the beds could only be ascertained approximately, having been merely estimated by the eye. A more favorable condition of the weather on the present occasion permitted me, by the aid of a rope tied to a tree at the top of the cliff, to descend the whole face, and obtain exact measurements. The following is a corrected section in ascending order:—

SECTION 3.

	Ft. Ins.	
Brownish-gray, or light drab sandstone, and black argillaceous shale, interstratified with one another, and both holding flattened stems of plants.....	6	0
Coal (1). Of a dull earthy aspect, and containing upwards of twenty per cent. of ashes by Dr. T. Sterry Hunt's Analysis (Report of Progress, 1871-72, p. 99).....	2	6
Coal (2). Clean and bright.....	7	6
	—	10 0
Brownish-black argillaceous shale.....	7	0
Coal (3). Clean and bright.....	2	4
Brownish-black argillaceous shale.....	2	6
Coal (4). Clean and bright.....	1	6
Brownish-black shale.....	1	3
Coal (5). Clean and bright.....	1	5
	—	9 0
Brownish-black argillaceous shale, interstratified with brownish sandstones and brownish-yellow weathering, hard, ferruginous beds from two to four inches thick.....	14	3
Coal (6). Clean and bright. This seam occupies the face of the cliff for a distance of only twenty feet, coming from the right, and then terminates somewhat abruptly, the corresponding space on the strike to the left being filled with black argillaceous shale, holding interstratified thin seams of coal.....	2	0
Brownish-black argillaceous shale.....	2	9
Coal (7). Clean and bright. This seam occupies the cliff for sixty-six feet, coming from the right, and then terminates somewhat abruptly, like the previous one; but on the right hand, there occurs in it a band of brownish-black, argillaceous shale, two feet thick, with thin patches of coal, and occupying about twenty-five feet on the strike, with about three inches of coal above and below.....	2	6
Brownish-black argillaceous shale.....	3	0
Coal (8). Clean and bright, varying in thickness from five to twelve inches, from inequalities sometimes at the top and sometimes at the bottom.....	1	0
Brownish-black argillaceous shale.....	4	0
Coal (9). Clean and bright.....	4	6
	—	16 9

thick, similar in character to the two masses at the summit of section 3, which, with the band of black shale between them, shew a thickness of 110 feet. They may thus be considered to represent the same horizon; but above the sandstones of Bradley's Creek, no exposures occur for half a mile. The deposits of the two sections, 3 and 5, are on the Beaufort coal-mining claim.

"The last place examined, in the further extension of the rocks of this division, is at the Baynes Sound Coal Mine, on the River Sable, as it is written by some, being probably a corruption of Rivière aux Sables. The position of this mine is about five and a half miles from the base, section 5, on Bradley's Creek, in a bearing S. 53° E., and two miles and three-quarters due west from the mouth of the stream on Fanny Bay. Here, as stated last year (Report of Progress 1871-72, p. 78), in a deep ravine through which the river finds its way, the following section occurs, resting on a black dioritic rock, the beds being given in ascending order, and their average dip being N. 76° E. < 10°—25°:

SECTION 7.

	Ft. Ins.
Yellowish-weathering, dolomitic-looking conglomerate, with pebbles derived from the crystalline rocks and varying in diameter from half an inch to two inches, filling depressions in the black dioritic rock beneath	3 0
Brownish-grey or drab sandstones, moderately fine-grained, and slightly calcareous, with scales of white mica	19 0
Black carbonaceous shale, showing numerous obscure impressions of plants, with nests of good coal, as well as beds of the same from two to eight inches thick; some parts of the whole thickness are half made up of coal	6 0
Black argillaceous shale, with nodules of iron ore, some of them flat and varying in length from six inches to four and five feet, and in thickness from six to eighteen inches, while others are round, with a diameter of eighteen inches: they all contain impressions of plants, difficult, to be obtained in a perfect state. The thickness of the band is from two feet to	3 0
Brownish-grey sandstones as before	18 0
Coal (1.) Clean and bright; varying in thickness, being in some parts five feet two inches, and in others seven feet; the lowest two feet show thin seams of black calcareous argillaceous shale, with obscure impressions of plants, say	6 0
Brownish-grey sandstones as before	60 0
Coal (2.) Clean and hard	5 10
Brownish-grey or drab sandstones, forming the whole height of the cliff, and estimated to be about	100 0
	220 10

"A partial section of these beds was given last year, from which it will be perceived that the present differs a little in some of the beds; but, as then stated, the two coal-seams are seen descending both sides of the ravine, and the edges of the lower one meet in the bottom of the stream; but while those of the upper one are still about twenty feet above the water, a fault occurs cutting them off, the underlie of the fault being S. 62° W. < 38°. The dip of the arenaceous strata which occur immediately on the eastward side of the fault is obscure. The coal-seams occupy two chains, and then the dip becomes N. 64° E. < 38°—43°. The following is the section of the whole of the measures on the eastward side in ascending order:

SECTION 8.

	Ft. Ins.
Brownish-grey sandstones	99 0
Brownish-black, soft, argillaceous shale	22 0
Light-grey sandstones	25 0
	146 0

"This is a greater volume of sandstone than was ascertained in this position last year; but, as then stated, the fault appears to be a down-throw to the north-east, the amount of which has yet to be determined.

"From the facts displayed in these various sections, it will readily be seen that workable seams of coal occupy a belt of pretty uniform breadth along the south-western rim of the Comox field, associated with brownish-grey false-bedded sandstones, interstratified with black carbonaceous and argillaceous shales at the base, and overlaid by light-grey, even-bedded, fine-grained sandstones at the summit. In all the sections a constant character is easily enough recognisable in Division A as a mass; but the notable

differences in the thickness of the coal-seams, and their distances from one another when in proximate sections, make it very difficult to establish the identity of individual seams over a very considerable area. This must be the work of practical explorers of the seams, by trial pits along the outcrops. But these irregularities and the occasional sudden interruptions in the continuance of the coal-seams constitute a remarkable distinction between them and the more regular beds of the true Carboniferous era, and may often occasion perplexities in working them. In no part of the exposures of Division A were any fossil shells met with.

CRYSTALLINE ROCKS.

"The detailed exploration of the lower measures of the Comox coal-field has as yet been confined to the eighteen miles that lie between Brown's River and River Sable, and in this the crystalline series on which they rest has been seen only in three places. In these, my inspection did not extend beyond the masses near the newer formation, or in positive contact with it. I cannot, therefore, pretend to give from these any connected view of the relation of the two series in age; but the exploration made for railroad purposes, at the request of Mr. Sandford Fleming, from the mouth of Qualicum River to Alberni on the upper extremity of Barclay Sound, having afforded me the opportunity of making a preparatory reconnaissance on a short line transverse to the strike of the crystalline series, has added to my information, and I propose here to give a brief description of the masses that were imperfectly observed in succession.

"The general bearing of the traverse, reduced to a straight line, is S. 28° W. It starts from the shore of Georgia Strait, at a point a little under three and a half miles north-west from Qualicum River, and terminates at the upper end of the Alberni Canal, as this part of Barclay Sound is called, the whole distance being somewhat under four-teen miles.

"On this the surface presents a plain, with a very gentle inclination for about the first four miles. It then rises with increasing rapidity for nearly two miles, and culminates on the ridge of Mount Mark, at a distance of six and a quarter miles from the commencement.

"The summit of this mountain is, by the Admiralty chart, 3,080 feet above the sea, and from this there is a precipitous fall of 2,723 feet, in less than a quarter of a mile, to the level of Horne Lake, which is 357 feet above the sea. A segment of the western end of Horne Lake occupies a little over two-thirds of a mile upon it. It then rises again with a few not very great undulations, for nearly three and a half miles, and attains a height of about 1,600 feet above high water mark. From this it falls rapidly for about two-thirds of a mile, and again reaches a gently inclined plain, over which it passes for two miles and two-thirds, and attains the Alberni Canal.

"The road travelled is a trail on the right bank of Qualicum River, and leaves the coast of Georgia Strait about a quarter of a mile from the mouth of the stream. For five miles it keeps about parallel with the river and with the traversed line, and reaches the lower end of Horne Lake. It then turns to the north of west, and runs close along the north side of the lake for about four and a half miles, crossing Qualicum River at its exit from the lake, which is about half a mile from its eastern extremity, and coming upon the traverse line, it still follows the margin of the lake, but in a southern direction for about two miles more, attaining its upper extremity. It then bears to the west of south for about two miles and a half, and winding round the foot of a hill called View Mountain, which attains an elevation of 1,600 feet over tide waters, on the right, it runs south-west for about three and a half miles in a straight line to the mouth of the Somass River, where this empties into the Alberni Canal at Stamp Harbour.

"The rock masses to be mentioned were all observed on or within a quarter of a mile of this trail, and none of them before reaching Horne Lake. The chief part of this nearly level intermediate plain is probably underlaid by the deposits of the Comox coal-field, and to these a space of four miles has been assigned on the traverse line. The masses first seen at the lower end of Horne Lake are composed of crystalline limestone. They were followed all along the north side, and partly round to the west side, in the whole of which distance they present an abrupt escarpment on the right hand. A quarter of a mile from the east of the lake, the dip is N. 48° E. < 41°, and three miles further on, it is N. 2° E. < 55°. Reaching the west side of Horne Lake, and looking northward to Mount Mark, a drift-covered surface rises up between 300 and 400 feet

above the lake in a distance of about a quarter of a mile; and from this starts up a wall of limestone with an almost perpendicular face, presenting a thickness of probably 1,200 feet, which is again capped by a great mass of brown-weathering diorite, probably 1,000 feet thick, and constituting the summit of the mountain.

"The diorite is of a dark olive-green color, and has a ragged fracture, on the surface exposed by which, when fresh, small spots of dull greenish-white feldspar are observed. The rock has a felted kind of structure, and obscure parallel joints are observable, the walls of which are varnished with a brilliant black mineral, which Dr. Harrington supposes to be Delessite. The rock has something of the aspect of the masses observed in contact with the coal-bearing series at the Union Mine, and on the River Sable, and the intermediate distance between Mount Mark and this series may be occupied with this and allied diorites. The mass capping Mount Mark, however, after descending to the sea level in its dip on the traverse line, would leave a blank space of about a mile between it and the coal series of which nothing definite can yet be said.

"The limestones which underlie this diorite are of whitish, bluish, dove-grey, yellowish, greenish, and pinkish colors, the different tints running parallel conformably with the stratification. The greenish tints may perhaps be due to the presence of chloritic or epidotic matter.

"The calcareous masses are interstratified throughout the whole 1,200 with well-defined bands of diorite of various thickness, from the eighth of an inch to two feet, as far as observed, but there may be beds of much greater thickness that have escaped observation. In these bands, the dioritic character is well marked by the presence of crystals of black hornblende, some of which attain a length of half or three-quarters of an inch, with a breadth of from one-eighth to a quarter of an inch, all with well-defined plains of cleavage. These diorites, at the junction of which with the limestone epidote is sometimes distinctly developed, are of various tints of grey, from dark to light, and some of them are of a speckled aspect similar to masses associated with the limestones in the vicinity of Victoria, mentioned in last year's report (Report of Progress 1871-2, p. 91). Some of the diorite beds are of lenticular form, while others are continuous; and they appear to be more abundant in the lower than the upper half of the calcareous mass.

"The limestones appear to be highly crystalline throughout, sometimes coarsely and sometimes finely so, and in some parts, on being acted upon with acid, show multitudes of grains of silica. They are in many places crowded with fossils, which in the more coarsely crystalline bands appear to be chiefly encrinural columns. Many of the remains are replaced by silica, and are weathered out distinctly on the surfaces. Some of them have been obtained by dissolving the limestone in acid, while numbers have been observed in thin microscopic sections prepared by the skill of Mr. Weston, since my return to Montreal. The following are Mr. Billings' remarks in respect to them:—

"The fossils from Mount Mark north of Horne Lake are,

1. Corals apparently of the genera *Zaphrentis* and *Diphyphyllum*.
2. Large crinoidal columns.
3. *Fenestella* or *Polymorpha*.
4. A large *Productus* and also a large *Spirifer*.

"They are so obscurely preserved that they cannot be determined specifically. They appear to be either Permian or Carboniferous, most probably the latter."

"These limestones probably extend on the traverse line for three-quarters of a mile to its intersection with Horne Lake, which occurs about eight and a quarter miles from the coast. This, however, would give to their thickness about 500 feet more than actually seen.

"For the next mile and three-quarters, including the portion which passes over the lake, there were no exposures on the traverse line. Further on, three-quarters of a mile are occupied by red ferruginous rocks, green diorites which are sometimes slaty and frequently amygdaloidal, and pale green epidotic rocks. These masses are interstratified with bands of bluish and greenish crystalline limestone in which no fossils were observed, and they are followed by green dioritic rocks, occupying about six chains, and dipping N. 13° E. <44°. Beyond this, there is another interval of concealment of nearly a quarter of a mile. Then whitish, yellowish, and bluish limestones present themselves, with a breadth of five chains, and beyond them seven chains hold red and green slates. These are followed by coarsely crystalline limestones of a yellowish-white color, occupying about twelve chains, and many of them crowded with crinoidal stems, some of

which are three-quarters of an inch in diameter. The dip of the beds is N. 2° E. $< 32^{\circ}$, and their position on the traverse line is very nearly nine miles from the Georgia Strait coast.

"Another interval of concealment here occupies about ten chains in width, and is succeeded by twenty chains of red clay slates, interstratified with harder red bands, to which green stripes parallel with the bedding give a ribband-like aspect, while both the harder and softer red slates are again interstratified with beds of red and pinkish limestone containing obscure fossils. In the next thirty chains red and grey clay slates prevail, interstratified with bluish and dove-grey limestones, varying from six inches to four feet in thickness. For half a mile beyond this the strata are vertical, their strike at first being N. 31° W., and finally N. 61° W. They consist of bluish-grey and yellowish-white limestones, in beds varying from five inches to two feet. The larger part of this great calcareous mass shows obscure organic remains, on weathered surfaces, crinoidal columns being unmistakable at the end of the distance. These masses constitute the rocks of View Mountain, and beyond them there occurs a valley which is half a mile wide, and about 1,034 feet above sea level. In it the rocks are not well seen, but they appear to consist chiefly of grey clay slates, interstratified with grey sandstones. On the succeeding rising ground, and on the rapid fall of the flank beyond, three-quarters of a mile are occupied by green, slaty diorites, dipping N. 87° E. $< 59^{\circ}$, underlaid by red and bluish-grey clay slates, which rest upon a green diorite. Here the height is only 578 feet above the sea.

"We now come again upon the coal-bearing series; and about eighteen chains are occupied with a conglomerate belonging to it. It holds well rounded pebbles of white and brownish quartzite, of from one to three inches in diameter, in a matrix of sand, the whole forming a strong and solid rock. No dips were anywhere observed in it, and it is therefore impossible to state its thickness. Further on there are no exposures; but the drift is probably underlaid by a continuation of the coal-bearing series, and the ground falls gently for two miles to the margin of the sea. The crystalline rocks which thus occupy the space between the coal-bearing areas on each side, are no doubt those which constitute the Beaufort Range of mountains. With the exception of the vertical portion in View Mountain, they all dip in one direction, namely eastward. Whether they are affected by undulations producing repetitions, has not yet been determined. But in order to shew in one view the supposed thickness to be dealt with in the investigation, they are here given in succession in what would appear to be a descending order, although it is possible that a fold may have occurred, causing a repetition of the beds:—

	Feet.
Measures concealed between the coal rocks and Mount Mark.....	2,240
Dark green diorites of Mount Mark.....	1,000
Whitish, bluish, dove-grey, yellowish, greenish and pinkish, crystalline, fossiliferous limestones, interstratified with dark and light-grey diorite....	1,700
Measures concealed	3,332
Red ferruginous rocks, green diorites, which are often amygdaloidal, and epidotic rocks, with interstratified bands of bluish and greenish crystalline limestones	1,139
Measures concealed	352
Whitish, yellowish, and bluish limestones.....	176
Red ferruginous rocks and slaty diorites, underlaid by yellowish, coarsely crystalline limestones, some of them crowded with crinoidal stems and with thin strings of what appears to be dolomite.....	308
Measures concealed	154
Red clay slates, interstratified with hard red bands, striped with green, all interstratified with red and pinkish limestones with obscure fossils.....	880
Red and grey clay slates, interstratified with bluish and grey limestones.....	1,320
Bluish-grey and yellowish white limestones, shewing obscure fossils in most parts, but distinct crinoidal columns at the base. These beds constitute View Mountain	1,760
Grey clay slates, interstratified with grey sandstones	968
Green dioritic slates, followed by bluish-grey clay slates resting on green diorite.....	2,112

"How far this great mass of rocks may descend in the series of geological formations, it would for the present be premature even to conjecture."

The quality of the anthracite coal found on Queen Charlotte Island is excellent, as will be observed from a glance at the following analysis:—

Carbon	71.20
Moisture	5.10
Volatile combustible matter.....	17.27
Ash	6.43
	100.00

The percentage of carbon in this analysis brings it very close up to the Pennsylvania anthracite.

No examination has yet been made, by the officers of the Dominion Geological Department, of the coal to the north-west of Comox; but the following extracts from Mr. Robert Brown's Report of the Coal Fields of the North Pacific will be highly interesting:—

"Sukwash.—North of this locality the trap rocks only appear until we come to a stream called Sukwash by the Indians, two miles south of Fort Rupert, when it again makes its appearance under the same conditions as before. Here the Hudson Bay Company mined it for some time, but have long ago discontinued the works, which have again begun to be tried by another company, who propose to carry it to Fort Rupert Harbour as their port of shipment; but independently of other considerations, the usual financial troubles inherent in colonial companies will prevent this scheme being realized for some time at least. From Sukwash, is a valley which goes right through to Koskeemo Sound on the other side of the island. This basin is, I believe, one of coal deposit, and the coal at Sukwash is of the same nature, and continuous with the extensive coal seams of Koskeemo Sound on the other side.

"Koskeemo Coal Seams.—The sounds of Quatseeno and Koskeemo are situated on the north-west coast of Vancouver Island, about 240 miles seaward from Victoria. The sound is one vast harbour, entered from the Pacific, and ramifying into a south-east arm, an east arm, and a west arm. The land in the vicinity of this inlet was acquired by an English company some years ago, who expended a considerable amount of money in causing a proper survey to be made of their mineral riches. These surveys were chiefly confided to Mr. J. J. Landale, who has been already mentioned as an able mining engineer. In 1866, just before my return to Europe, I had the good fortune also to visit these sounds, travelling over the island with some Indians who had visited Fort Rupert of the Hudson Bay Company, where I was then staying. The Indians I found to be the mildest and most amiable of the class I have yet encountered, and during my examination of the shores (chiefly for botanical purposes), they showed me every attention and kindness. At the period of my visit there were no whites then living there, and accordingly my sole companions were the Indians, in whose company I remained for upwards of a week, travelling from the head of the East or Rupert Arm to the Pacific in their canoes, subsisting almost entirely by my rifle, having taken very little provision from the fort. Previous to my visit, Mr. Landale was good enough to favour me with a perusal of his MS. notes, which formed a useful guide to my geological examination of the coal seams. I found them exceedingly accurate, his examination having, from the length of time he resided in the locality, been much more minute than mine. What follows is derived almost entirely from his memoranda. However, without the use of sections and coloured geological maps, some portion will not be so intelligible as I should have desired.

"The coal-fields are situated on the north-western side of Rupert Arm, and are contained within an area of 5000 acres. The coal strata lie on a bed of calciferous sandstone many hundreds of feet in thickness—the last deposit being probably equivalent to the mountain limestone of older series. This coal-field has several peculiar stratigraphical features. While there are several beds of conglomerate through it, still two of them require particular attention, and form distinctive features in the basin. The one is of an aggregate thickness of 70 feet, overlying and in contact with the calciferous sandstone, and the other entirely above the coal; the former containing finer stones and pebbles, and having a dull reddish colour, owing to the presence of peroxide of iron; while the latter is coarser in its material, and not so firmly cohesive, and is, according to Mr. Landale, at least 100 feet in thickness. These two deposits may be classed as the (a) upper,

and (b) lower conglomerate of the series. By attending to the peculiarities described, it is easy to see when you are above or below the coal strata. Through the whole formation, consisting of coarse and fine conglomerates, sandstones, shales, fire-clays, and coal, are found fossiliferous beds. The contained fossils leave no doubt that the age of the beds are cretaceous, probably belonging to the same horizon as the Nanaimo strata. Dicotyledonous plants form the principal vegetable impressions, and calamite-like stems are common. Among other animal remains are *Belemnites*, *Ammonites*, *Plagiostoma*, *Inocerami*, *Hippurites*, various *Chama*-like shells, *Trigonia*, and some still more recent types as *Pectunculus sublevis*, *Astarte*, *Natica*, and *Paludina* (several species), all these overlying the coal-beds. Most of the shales are more or less bituminous, and the different seams of coal are characterised by a shining cubical fracture, by a regular lamination, and an almost complete exemption from sulphur in the "cutters" or vertical divisions. A large penine fault cuts off the whole basin by throwing it southwards, on which side of it are to be seen, at the surface, the calciferous sandstone whereon the basin lies, and also the underlying metamorphic rocks. The trap does not cross the great fault.

"The seams of this basin are five in number, and have been found in outcroppings on various parts of the field, and in sundry small shafts sunk by Mr. Landale. The dip is southwards, with an average indentation of 1° , $3\frac{1}{2}^{\circ}$, or 4° . The first seam is seen cropping out about two miles up the stream, called by the Indians *Natsenuchtum*. It varies in thickness from 2 feet 8 inches to 2 feet 11 inches, and consists of different varieties of coal. It is an excellent household coal; Mr. Landale informs me, in his opinion—the best on the coast. It contains an unusually high per centage of carbon—fully as high as the Queen Charlotte Island anthracite, to be hereafter described—so that it seems scarcely a secondary lignite. I presume the analyses to be correct. It is as follows:—

	1st Analysis.	2nd Analysis.
	In 100 parts not dried.	
Carbon	70.00	71.00
Hydrogen	5.30	5.35
Nitrogen.....	1.28	1.10
Oxygen	10.01	11.55
Sulphur.....	0.41	0.60
Ash.....	13.00	10.40
	100.00	100.00
Specific gravity	1.360	1.320

It evolves a strong, continuous heat, leaving a small bulk of pure white ash, easily fusible. The coke from it does not swell much. Mineralogically it has a cubical fracture, horizontal laminae, and vertical cleavage planes, with thin films of carbonate of lime. The basin is calculated to contain about 4000 acres of this coal, and to be capable of yielding 2100 tons per acre. Immediately above the next seam lies a fine building stone. The thickness of this coal seam is from 1 foot 10 inches to 2 feet thick. The coal is of a denser quality than the former, is well-fitted for coke making, swells considerably while burning in an open fire, and leaves a good deal of cinder. It is well adapted for smelting and smiths' purposes. There are about 3500 acres of this coal, computed by Mr. Landale to yield 2500 tons to the acre. Its mineralogical characteristics are cubical fracture, laminae filled with lignitic matter, lustre small. On analysis, it gives 100 parts—

	1st Analysis.	2nd Analysis.
	Not dried.	
Carbon	67.50	67.00
Hydrogen	5.15	5.10
Nitrogen	1.75	1.50
Oxygen	12.00	13.17
Sulphur.....	0.90	0.84
Ash	12.70	12.39
	100.00	100.00

"Of the next seam it is difficult to speak, as it is only seen in a vitrified condition, at one point, lying close on the fault to the west of a point known as "Adamson's Hut." It appears to be a hard coal, and, in its natural condition, probably of the cannel kind. The next seam is 2 feet 6 inches in thickness, highly impregnated with gas, and closely

resembling the Torbanehill or Boghead Gas Coal. It would probably yield paraffin by distillation. The bowl of a common tobacco pipe filled with this shale, powdered, gave a jet of gas for two minutes and a half, though the luting round the bowl was very imperfect. This seam resembles the Torbanehill in another particular, viz., in burning it looses immensely in weight, though but little in bulk. Mr. Landale computes that there are at least 4000 acres of this coal, capable of yielding 2250 tons to the acre. On analysis, it gave in 100 parts—

Carbon	60.436
Hydrogen	8.820
Nitrogen	1.235
Sulphur	0.300
Oxygen	4.551
Ash	25.168
	<hr/> 100.510

In appearance it is dullish black, with very little lustre.

"The fifth, or main seam, was found in a shaft close to Adamson's Hut, in the West Arm. It is 4 feet 6 inches in thickness. There is some resemblance between this coal and that mined at Nanaimo. There is, however, this important difference, that the Nanaimo coal has its laminæ and cleavage joints filled with a crust of earthy matter, consisting of carbonate of lime and iron, and often iron pyrites, to an extent which frequently renders the coal useless, while the only impurities in this seam are little laminæ of shale of a dark colour, which burns nearly as well as the coal itself, the cleavage joints showing scarcely any sulphur, being very thin, and containing only a little lime. For steaming purposes an analysis of this seam shows it to be excellently adapted—

	1st Analysis.	2nd Analysis.
Carbon	66.15	68.15
Hydrogen	4.70	4.50
Nitrogen	1.25	1.10
Sulphur	0.80	0.70
Oxygen	13.50	11.50
Ash	13.60	14.05
	<hr/> 100.00	<hr/> 100.00
Specific gravity.....	1.320	

"The whole of the Koskeemo coal-basin is broken up by four faults into three great divisions. The quantity of coal contained in the basin (of nearly 8 square miles) would, according to the calculations already given, be about 41,350,000 tons; deducting, however, one-fifth for the action of the faults—a large estimate—there yet remains 33,080,000 tons, or 600,000 tons for a period of fifty-five years! Even this calculation does not embrace all, for the study of the Vancouver coal-fields shows that the lower conglomerate is rarely found nearer than 120 feet to the top of the series, and is generally much further off; so that, in going down beyond 120 feet, other seams of coal may be discovered of great extent and excellence. Many copper seams being found in this vicinity, as well as in many other parts of Vancouver and Queen Charlotte Islands, smelting works might be conveniently established here. An exuberant supply of the finest timber is everywhere found over the North Pacific coast. My opinion is decided that the Koskeemo coal-field is the best yet discovered in Vancouver Island, though unopened out, not only on account of the superior quality of the coal, but the ready accessibility of the mines from the Pacific, without the tedious inland navigation requisite for reaching the mines on the eastern seaboard of the island.

"Other localities.—The accompanying lithological characteristics of the coal strata do not disappear, except at intervals, down the whole west coast of Vancouver Island, until the cretaceous beds are again overlapped by the tertiary on the north shore of the De Fuca Straits. However, no coal has been found there; and in some places the rocks are highly metamorphosed, and for long tracts nothing but gneissose rocks, crystalline limestones, or traps are seen. The Indians told me of coal in Ouckucklesit Harbour, off the Alberni coast; but I could never get any specimens of it. At Alberni, the coal shales appear, but no boring has been made for coal, so that whether coal underlies them or

not is difficult to say. The little layers of coal which crop out here and there on the northern (Vancouver) shores of De Fuca Straits are, I am convinced, in every case of tertiary age, and continuous with the seams on the opposite shore at Clallam Bay."

The Nanaimo coal is bright, tolerably hard, and not unlike some of the best qualities of English or Welsh coal in appearance. It burns freely, with good heat, but produces a great amount of ash.

The coal mined by the Vancouver company and Wellington company are alike suitable for domestic purposes, and though both are used for furnaces, yet the latter is preferred as producing less slag. Gas, at Victoria, is manufactured at present entirely from the Vancouver company's coal.

The following is an analysis of a fair sample of the coal from Nanaimo:—

Carbon	68.93
Hydrogen	5.32
Nitrogen	1.02
Sulphur	2.20
Oxygen	8.70
Ashes	15.83
	100.00

Although coal at the pit's mouth ranges in price from \$5 to \$5 50 per ton, still it is of such excellent quality, that every ton raised finds a ready sale.

IRON.

Iron ore has been found from time to time in different parts of the Province, and recently deposits have been discovered on Texada Island, in the Gulf of Georgia, of inexhaustible quantity, and of the greatest value.

These deposits were examined, in 1874, by Mr. James Richardson, of the Geological Survey of Canada; and the following extract from his Report to Mr. Selwyn may prove interesting:—

"On the south side of Texada Island, about three miles north-westerly from Gillies Bay, and about seventy paces from the shore, a small exposure of magnetic iron ore was met with, associated with a coarse-grained epidotic rock, and grey diorite. Immediately north of this exposure the ground rises steeply to about 450 feet above the sea. Here on the eastern and south-eastern slopes of the hill, for 150 feet down, and extending from 200 to 250 feet in length, is an exposure of rich magnetic iron ore. On the outcrops facing to the north-west the ore-bed which dips from S. 58° E. to E. < 25°—30° is seen to be from twenty to twenty-five feet thick, and to rest on grey crystalline limestone, with which, for about two feet down, are interstratified bands of ore, of from half an inch to one inch in thickness. The hill still rises to the north and north-east, but along the flank, and at about the same elevation, in a north-westerly direction for nearly a mile, the ore is occasionally seen, and in one place there is a continuous exposure of it for about 250 feet, the bed apparently varying in thickness from one foot to ten feet. In the concealed intervals its course appears to be indicated by a coarsely crystalline epidotic rock carrying ore in places, but with the grey limestones apparently overlying it to the north-east, and the grey and green dioritic rock beneath it to the south-west. Where the ore-bed is exposed in this part of the hill, a similar arrangement of the beds is observed, and what here appears to be the base of the limestone exhibits interstratifications of ore similar to those described at its summit in the first exposure. An over-turn dip is probably the cause of the apparent differences in the arrangement of the beds. In a north-easterly direction from the first noticed exposure for a quarter of a mile no ore is seen, after which it is again found, at first in irregular patches mixed with epidotic rocks, and then, its course becoming more northerly, for more than half a mile the bed presents an irregular surface exposure of from 600-900 feet of nearly pure ore. In this part the dip could not be ascertained with certainty, and I am therefore unable to estimate the thickness of the ore. Loose pieces of limestone, with interstratified ore-

bands, were found on the west side, while to the east the ore is bounded by grey and green dioritic rocks.

"Circumstances did not admit of my remaining on the island long enough to trace the continuation of this valuable deposit of iron ore. Mr. Henry Trim, of Howe's Sound, however, who has explored the island, informed me that the ore is to be seen occasionally in considerable exposures to near the north-east coast of the island, a further distance of more than three miles.

"These iron ores could scarcely be more favourably situated than they are, either as regards mining, smelting or shipment. There is deep water close to the shore, and wharves might be easily and cheaply constructed, at which vessels could always load in safety, except during the heavy south-east winds which occur occasionally from the middle of September to the end of March. But during these, Gillies Bay, only three miles distant, would afford a safe and convenient harbour of refuge. There is also another harbour at the north end of the island, about seven miles distant, which would afford shelter in all weather. The site of the ore is eighteen miles from Comox Harbour, twenty-one miles from Deep Bay, and about twenty-three miles from Fanny Bay. These are all good and safe harbours, and are only a short distance from the productive coal-seams of the Comox area. In the event of charcoal being required for smelting the ore, abundance of wood suitable for making it can be procured on the island."

COPPER.

In the remarks made upon the Hope silver leads, it will have been observed that one of the ores there, in which silver exists, is described as argentiferous grey copper; there is, however, no assay of this ore available from which the percentage of copper could be estimated.

There is no doubt that copper is widely distributed throughout the Province, the crystalline rocks being invariably more or less stained with copper, while the submarine cable from Vancouver Island to San Juan, on being lifted, is always discovered to be corroded and encrusted with deposits of copper.

Copper ore, *in situ*, has been found in various parts of the Province, notably at the entrance of Howe Sound. Here, a well-defined lead of excellent copper pyrites, giving some 30 per cent., was discovered in 1865, and worked for some time, with excellent prospects of success. Want of capital has caused the operation to be suspended, if not abandoned.

Copper was found near Sooke in 1864, and efforts were made to develop this industry in that locality, but no defined lead could be discovered.

Copper has been found also on Knight's Inlet. White men, trading at the head of this Inlet, have obtained, by gift or purchase, considerable quantities of excellent copper ore from the Indians, who, there is reason to believe, are aware of the existence of valuable leads. Parties of white men have from time to time endeavoured to discover the exact locality, but hitherto without success. The Indians cannot be induced to point out to the white man the lead from which they have taken the specimens.

BRITISH

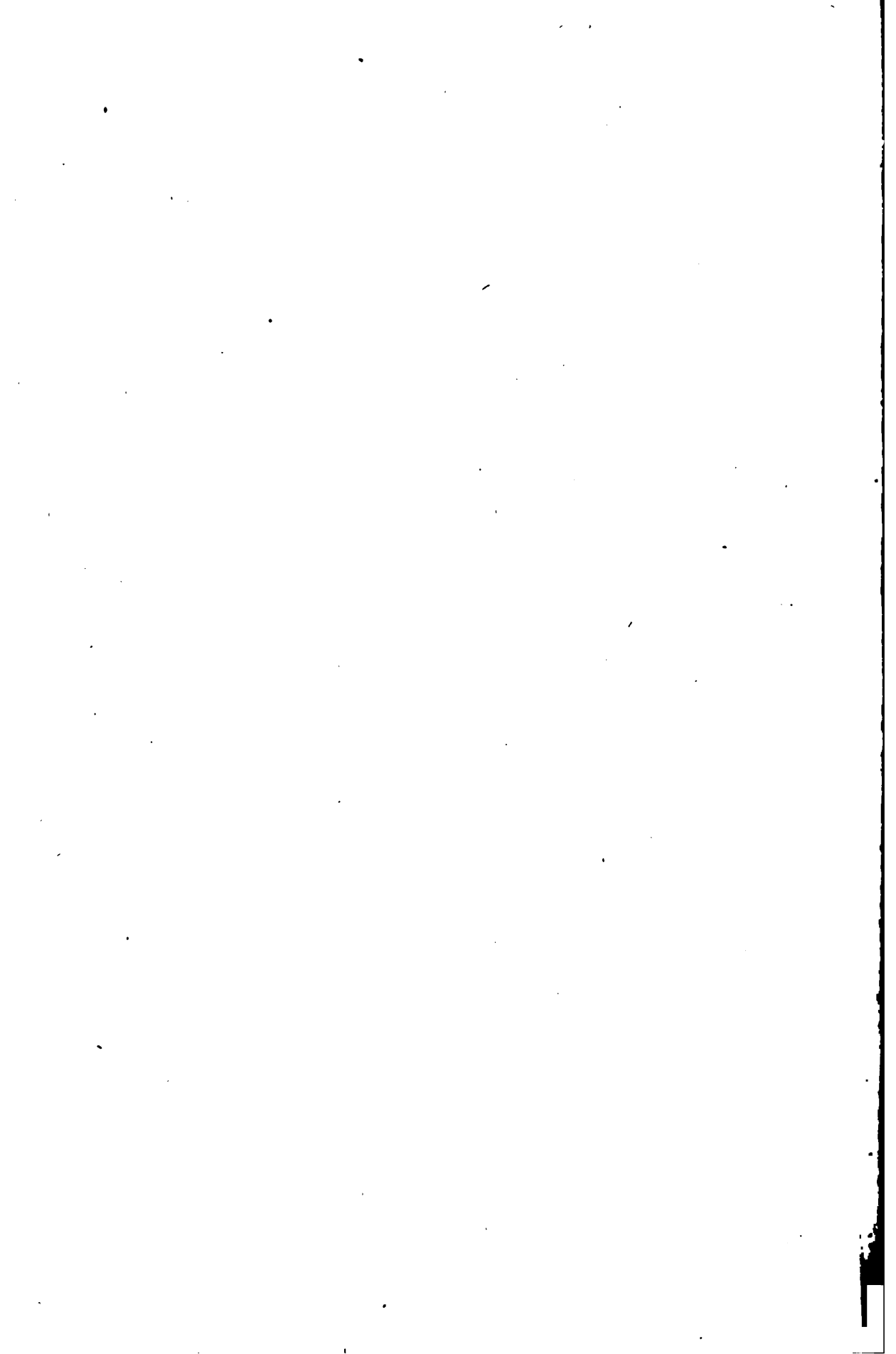
MINING STATISTICS

Districts, and their Divisions.	ALLUVIAL MINERS.		Mining Population.	Total Population—Whites, Chinese, Men, Women, and Children, at Mines.	MACHINERY EMPLOYED IN ALLUVIAL MINING.				
	Whites.	Chinese.			No. of Steam Engines Employed.	Water Wheels.	Shafts.	Tunnels.	Hydraulics.
CARIBOO.									
Lightning Creek.....	92	90	182	416	2	12	18	4	.....
Williams Creek.....	210	104	314	1012	1	4	29	5	27
Grouse Creek.....	44	.....	44	46	.....	4	3	.....	4
Lowhee and Stouts Gulch.....	38	.....	38	38	2	3	6	.....	2
Antler, Cunningham, &c.....	34	.....	34	34	.....	2	4	.....	2
Musquito Creek ..	17	.....	17	.....	.....	.....	.....	2	.....
Van Winkle, Stanley, and Peterson.....	13	6	19	19	.....	1	1	.....	1
Davis, Jawbone, and Coulter.....	23	.....	23	23	.....	1	.....	.....	1
Swift and Cottonwood Rivers.....	.....	19	19	19	.....	.....	.....	.....	2
Nelson Creek.....	.....	20	20	20	.....	.....	.....	.....	4
Chisholm Creek.....	14	1	15	15	.....	.....	1	.....	1
Burns Creek.....	14	26	40	40	.....	.....	.....	2	.....
Quesnelmouth.....	.....	18	18	104	.....	.....	.....	.....	4
Quesnel—North and South Forks.....	.....	120	120	253	.....	1	9	.....	1
Keithley Creek.....	26	60	86	86	.....	3	1	2	.....
Harvey Creek.....	11	14	25	28	.....	.....	1	1	.....
Snow-shoe Creek.....	7	5	12	12	.....	.....	2	.....	.....
Other Creeks.....	1	57	58	.....	.....	.....	.....	.....	.....
KOOTENAY.									
Perry Creek.....	33	.....	33	35	.....	.....	.....	2	1
St. Mary and Moojin Rivers, Weaver's Creek, Palmer's Bar.....	14	.....	14	14	.....	.....	.....	.....	1
Wild Horse Creek.....	75	.....	75	120	.....	.....	.....	1	7
OMINECA.									
Slate, Elmore, and Lost Creeks.....	21	.....	21	21	.....	.....	.....	.....	1
Manson River.....	19	.....	19	19	.....	.....	.....	1	.....
Germansen Creek.....	34	.....	34	40	.....	.....	.....	1	3
LILLOOET.....	8	80	88	195	.....	.....	.....	.....	.....
CASSIAR.....	1500	.....	1500	1600	.....	.....	.....	2	.....
TOTAL.....	2248	620	2868	4209	5	31	75	23	57

COLUMBIA.

FOR THE YEAR 1874.

MINING.		RECORDS, LICENSES, &c.						NATURE OF DIGGINGS.	RATE OF WAGES.	PRICE OF GOLD per oz.		Estimated amount realized in each Mine.
Windlass.	Ground-slice.	Free Miners' Licenses.	Leave of Absence.	Claims Recorded.	Bills of Sale.	Water Records.	Mortgages recorded			From	To	
.....	.....	622	90	202	238	16	33	.....	\$ 6	\$ 17 60	\$ 17 67	\$ 405,187
1	4								4 to 5	17 60	17 75	108,024
1	.....								3 to 5	15 87	.....	12,000
.....	.....								3 to 6	17 25	17 37	75,000
.....	.....								3 to 6	17 25	17 37	2,500
.....	2								5	17 80	.....	No Estimate.
.....	3								6	17 75	17 80	3,500
.....	2								.....	17 65	17 90	11,600
.....	4								3	16 50	17 65	12,000
.....	1								3 50	17 65	17 75	8,250
.....	7	193	4	62	.....	10	.....	Bar	6 to 6 50	17 65	17 75	1,200
.....	.....								6	17 50	18 00	23,800
.....	.....								2 75	14 50	.....	.....
.....	.....								3	16 50	.....	No Estimate.
.....	.....								3 to 6	17 40	.....	19,500
.....	.....								6	17 50	.....	No Estimate.
.....	.....								5	16	17	.....
.....
.....
.....	6	33	2	20	.....	2	.....	Creek 6 ft.	3 50 to 6	17	18	50,000
.....	4	12	.....	10	.....	2	.....	Bend 4 feet	.....	17	18	
.....	37	75	7	52	.....	4	.....	6 to 30 feet [deep]	3 to 4 50	17	18	
.....	5	50	16	124	.....	8	.....	2 to 10 feet [deep]	6	16	.....	38,000
.....	5											
.....	5											
.....	30	31	30	.....	.....	13	.....	.....	.....	16	17	55,000
.....	797	825	176	.....	.....	12	.....	[deep] 1 to 14 feet	8 or 9	.....	.....	1,000,000
2	912	1841	325	470	238	67	33	.....	.....	.....	.....	1,825,561



THIRD ANNUAL REPORT

OF THE

MINISTER OF MINES

FOR THE

YEAR ENDING 31ST DECEMBER,

1876,

BEING AN ACCOUNT OF

MINING OPERATIONS FOR GOLD, COAL, ETC.,

IN THE PROVINCE OF

BRITISH COLUMBIA.

HON. A. C. ELLIOTT,
Minister of Mines.

MR. CHARLES GOOD,
Deputy Minister of Mines.



VICTORIA:

PRINTED BY RICHARD WOLFENDEN, GOVERNMENT PRINTER,
AT THE GOVERNMENT PRINTING OFFICE, JAMES' BAY.

1877.

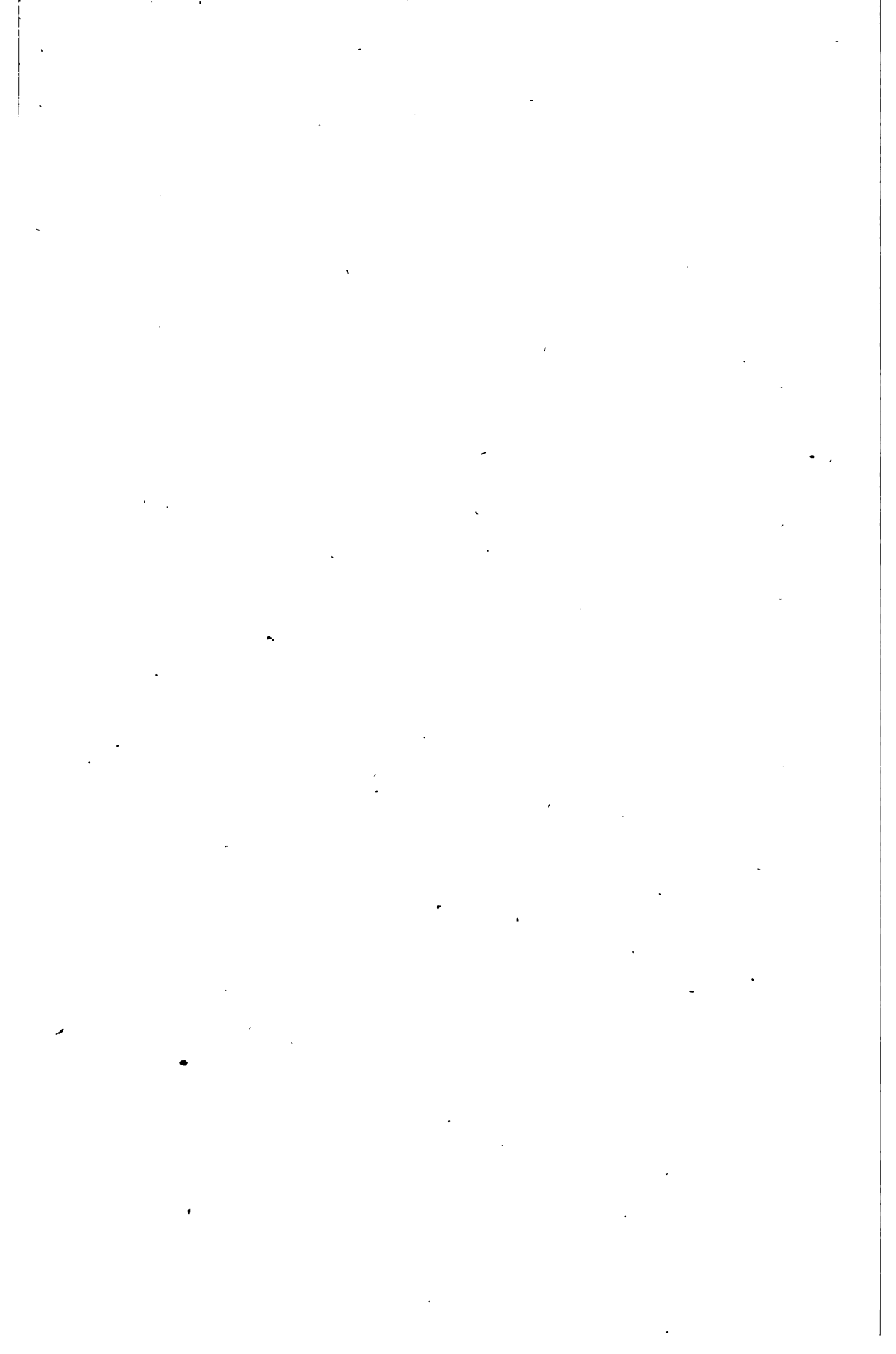
THE NEW YORK
PUBLIC LIBRARY
P 14867
ASTOR, LENOX AND
TILDEN FOUNDATIONS.
1898.

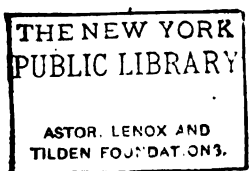
PROV'L SEC'Y, B.C.

VHCA

AR 1876.

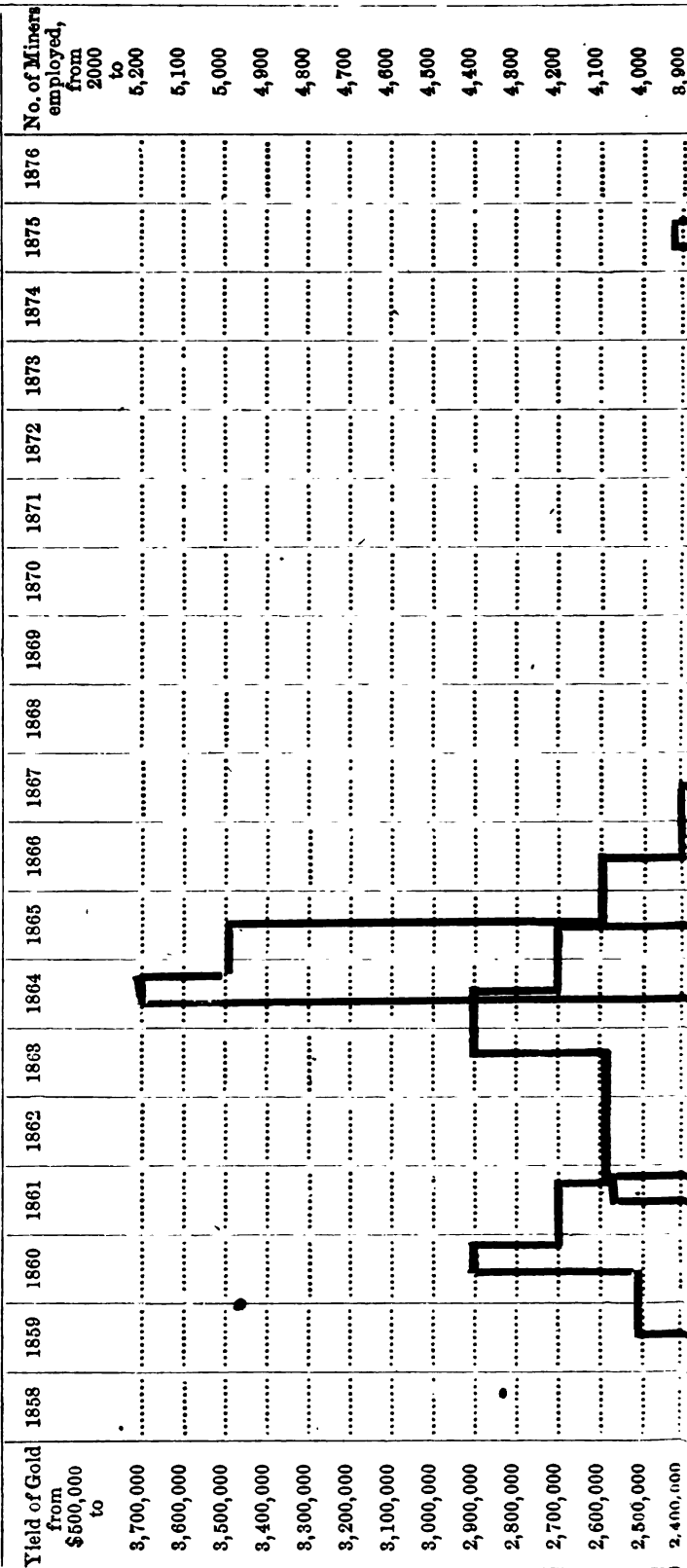
DIS	LICENCES, &c.			Nature of Diggings.	Rate of Wages.		VALUE OF GOLD DUST PER OZ.		Amount of Gold produced in each District according to estimate of Gold Commis- sioners and Gov't. Agents.	REMARKS.	
	Bills of Sale recorded.	Water recorded.	Mortgages recorded.			Whites.	Chinese.	From			To
Williams Creek											
Conklin Gulch											
Stouts Gulch											
Grouse Creek											
Cunningham Cr											
Antler Creek											
Stevens Creek					\$5	\$3 00	\$15 87	\$17 50	\$137,306		
Beggs Gulch											
Lowhee Creek											
Mosquito Creek											
Whipsaw Creek	3	243	26	11							
Lightning Creek											
Burns Creek											
Nelson Creek											
Coulters Creek											
Dragon Creek											
Rochon Creek					6	3 50	16 50	18 00	224,071		
Cottonwood River											
Davis Creek											
Peters Creek											
Canyon Creek											
Deadwood Creek											
Keithley Creek											
Snowshoe Creek											
South Fork of Q											
North Fork of Q	1	16	12		5	3 00	16 50	17 50	82,460		
Queenelle River											
Harvey Creek											
Spanish Creek											
Kangaroo Creek											
Thiberts Creek	3	155	6	6	6	3 00	16 00		139,720		
Dease Creek	4	181	15	15	6108	4 00	15 40		160,300		
McDames Creek	2	221	39	8	8		17 00		93,200		
Do.	6								20,900		
Suow and Trout C									49,600		
Mission Creek	3		2		Hill and Creek		17 00		3,000		
Cherry Creek									4,000		
TRANQUILLE RIVER	1		1		{ 300 rocker, 20 ground sluices }		16 00		7,000		
Bridge River, Lik	9		10				15 00	16 50	25,000		
Yale and Hope	3		6			5 00	15 50		9,114		
Wild Horse Creek											
Perry Creek	0	13	8	7	Hill and bench	4	3 50	18 00	25,000		
Palmer Bar											
	3	799	125	47					\$ 980,671		

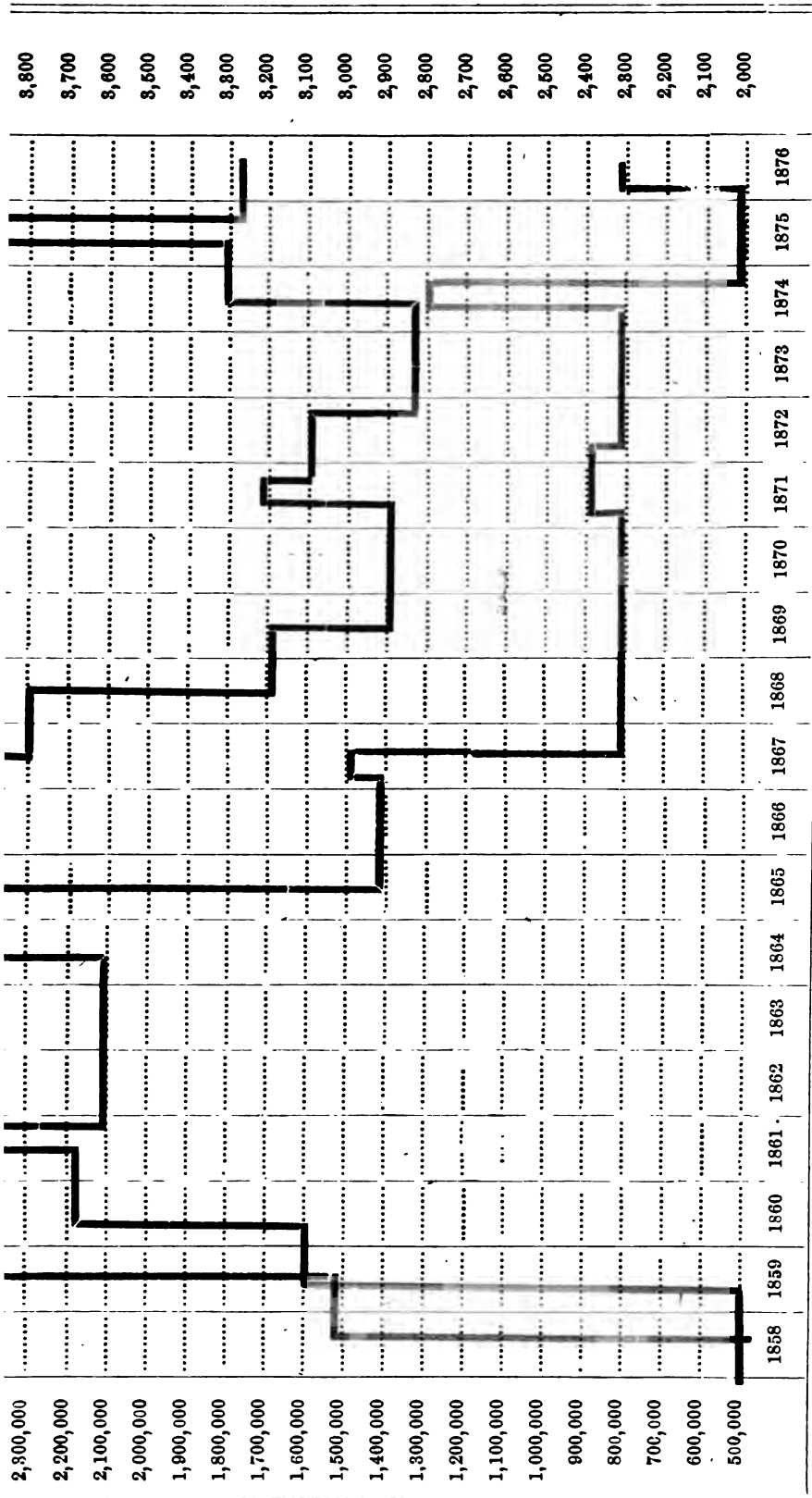




Showing the rise and fall in the yield of Gold in each year, from 1858 to 1876 (coloured green).

Reference to left column for yield of gold.





And of the number of miners employed in each year, from 1858 to 1876 (coloured red).

Reference to right column for number of minors.

THE NEW YORK
PUBLIC LIBRARY

ASTOR, LENOX AND
TILDEN FOUNDATIONS.

PROVINCE OF BRITISH COLUMBIA.

TABLE

Shewing the actually known and estimated yield of Gold; the number of Miners employed; and their average earnings per man, per year, from 1858 to 1876.

Year.	Amount actually known to have been exported by Banks, &c.	Add one-third more, estimate of gold carried away in private hands.	Total.	Number of Miners employed.	Average yearly earnings per man.
1858 (6 months). }	\$ 390,265	\$ 130,088	\$ 520,353	3,000	\$ 173
1859	1,211,304	403,768	1,615,072	4,000	403
1860	1,671,410	557,133	2,228,543	4,400	506
1861	1,999,589	666,529	2,666,118	4,200	634
1862	} 3,184,700	1,061,566	4,246,266	4,100	517
1863				4,400	482
1864	2,801,888	933,962	3,735,850	4,400	849
1865	2,618,404	872,801	3,491,205	4,294	813
1866	1,996,580	665,526	2,662,106	2,982	898
1867	1,860,651	620,217	2,480,868	3,044	814
1868	1,779,729	593,243	2,372,972	2,390	992
1869	1,331,234	443,744	1,774,978	2,369	749
1870	1,002,717	334,239	1,336,956	2,348	569
1871	1,349,580	449,860	1,799,440	2,450	734
1872	1,208,229	402,743	1,610,972	2,400	671
1873	979,312	326,437	1,305,749	2,300	567
1874	1,333,464	461,154	1,844,618	2,368	643
1875	1,856,178	618,726	2,474,904	2,024	1,222
1876	1,389,986	446,662	1,786,648	2,282	783
			39,953,618	60,251	

Average number of miners employed yearly 3,171

Average earnings per man, per year \$ 663

Total estimated and actual yield of gold, 1858 to 1876 \$ 39,953,618

THIRD ANNUAL REPORT

OF THE

MINISTER OF MINES

FOR THE

YEAR ENDING 31st DECEMBER,

1876,

BEING AN ACCOUNT OF

MINING OPERATIONS FOR GOLD, COAL, ETC.,

IN THE PROVINCE OF

BRITISH COLUMBIA.

HON. A. C. ELLIOTT,
Minister of Mines.

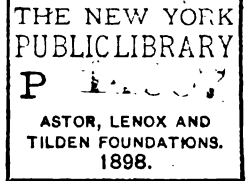
MR. CHARLES GOOD,
Deputy Minister of Mines.



VICTORIA:

PRINTED BY RICHARD WOLFENDEN, GOVERNMENT PRINTER,
AT THE GOVERNMENT PRINTING OFFICE, JAMES' BAY.

1877.



REPORT OF THE MINISTER OF MINES

FOR THE YEAR 1876.

To His Excellency A. N. RICHARDS, *Lieutenant-Governor of the Province of British Columbia.*

MAY IT PLEASE YOUR EXCELLENCY:—

I have the honour herewith to present to Your Excellency the Third Report of the Mining industries of the Province.

All of which is respectfully submitted.

I have the honour to be,

Your Excellency's obedient Servant,

A. C. ELLIOTT,

Provincial Secretary & Minister of Mines.

9th January, 1877.

REPORT.

GOLD MINING.

A mere glance at the tabulated statements of Mining statistics for the Province for the years 1875 and 1876, by way of comparison, is sufficient to establish the fact that the Returns of Gold are almost in every direction less in 1876 than they were in 1875.

The estimated total yield for 1876 is.....	\$ 980,671 00
As against (in 1875).....	1,728,588 00

In Cariboo, Kootenay, and Cassiar the yield has been manifestly less, nor is it possible with any degree of accuracy to lay down the exact causes of the decrease.

The amounts actually exported by the Banks in 1876 are as follows:—

Bank of British Columbia.....	\$ 464,814 90
Bank of British North America.....	527,470 35
Wells Fargo & Co.....	347,701 13

\$1,339,986 38

Add one-third for Gold exported in private hands	446,662 12
--	------------

Total.....\$1,786,648 50

In Cassiar, in 1876, the number of Miners employed was certainly one-fourth more than in 1875, and the results have been, to judge from general report and from the reports of the Gold Commissioner herewith published, very satisfactory, and the prospect for the future season excellent.

In Cariboo the rich claims on Lightning Creek have not nearly equalled in yield that of last year. In other claims there appears not to be much difference.

Omineca is almost deserted, and Kootenay would appear to have declined considerably, the yield of Gold being \$16,000 under last year.

A new Gold field has been discovered on Cherry Creek, and Mr. C. A. Vernon, the neighbouring Commissioner, is impressed with the idea that favourable results will ensue.

ACTUAL YIELD.

The amount actually exported by the Banks in 1876 is over \$500,000 less than in 1875, and the total estimated yield of Gold for the whole Province is \$1,786,648 50, as against \$2,474,904 in 1875, or \$688,255 50 less.

This falling off, as before mentioned, is chiefly owing to the impossibility of working the rich claims on Lightning Creek, the fact that the hydraulic claims were not washed up, and a decrease at Cassiar. However the yield is still in excess of that for the years 1872, 1878, and 1874.

CASSIAR.

The yield of Gold in this section is estimated by Mr. Commissioner Vowell at \$556,474 for the year 1876, as against an estimated return of \$800,000 for 1875.

1,500 miners and others visited the Cassiar diggings in 1876, while only 1,000 went up in 1875. A larger yield of gold might therefore have been anticipated, but it is generally believed that 1,500 miners were more than could be profitably employed; this opinion is forcibly expressed by Mr. Vowell in his letter of the 81st August, annexed.

A favourable indication for the future success of Cassiar is the fact that the benches of McDame and Thibert Creeks prospect richly, and only require a supply of water (which is being provided) to produce excellent results.

Mr. Vowell reports that nuggets up to 18 oz. in weight have been found in what is supposed to be the old channel in Thibert Creek, and that sanguine expectations have been formed of the workings for 1877.

If Cassiar has not realized the perhaps over sanguine expectations formed of it, it is at least satisfactory to know that it affords employment for 1,000 men, and has this year produced as much gold as Cariboo.

The Commissioner's reports annexed contain much valuable and interesting information, and will repay a careful perusal.

"LAKETON, CASSIAR,

"29th June, 1876.

"SIR:

* * * * *

"It is satisfactory to be able to report that some seven discoveries have been already made in the district this season; they are as follows:—On the upper portion, some 20 miles from mouth of Thibert Creek; and on Berry, French, Bear, California, and Merritt gulches, paying diggings have been discovered. The four first mentioned gulches are on Thibert Creek; the latter on the west side of Dease Lake, about half a mile below Laketon. A valuable discovery has been made at the foot of Snow Creek, a tributary of McDame Creek, and some eighteen miles from the mouth of latter. The discoverers are Sylvester, Vital, and Fred Black, all well-known prospectors, and deserving of the claims which they now hold, and which have paid, up to within a short time since, from \$40 to \$50 per day to the hand; the last accounts showing a much larger return.

"According to the most accurate information which I can get at present, the number of men already in this district may be safely put down at 1700. In addition to the above, men are arriving every day; and I learn that about one hundred more are *en route*. Of the above, there are some three hundred and fifty on Dease Creek (Chinamen included), about four hundred on Thibert Creek and its tributaries, between seven and eight hundred in the vicinity of McDame Creek, and several parties prospecting in other portions of the district.

"Included in the latter, are some forty men who have gone to Sayyee Creek on the Deloires, where very encouraging prospects were obtained by some of that party last fall. Sayyee Creek is some three hundred and fifty miles from Laketon, and generally takes from twelve to fourteen days to get there. I have empowered one of the party to issue free miners' certificates, etc., and make mining records, as the creek is not of sufficient importance at present to think of appointing an officer for that locality.

"Owing to the many obstacles which have had to be overcome by the mining community this year, the claims, as a general thing, have not been in working order for any length of time; and, consequently, no estimate can as yet be arrived at as to the probable yield of gold for 1876.

"Much damage has been done, and delay caused, by the spring freshets this year to mining property on the different creeks; in many instances houses, bridges, and wing-dams innumerable have been completely swept away.

* * * * *

"I find that Laketon, Dease Creek, as the most central situation in the district, is the best adapted for the residence of the Gold Commissioner, and I shall, in consequence, make it my head-quarters.

"It is my intention, as soon as I get through all business requiring my immediate attention here, to visit Thibert and McDame Creeks, and should I have time during the summer I would also wish to visit Sayyee Creek, on the Deloires. I doubt my being able to do so, however, as I shall be obliged to visit Telegraph Creek, on the Stickeen, as soon as possible, and business will be very pressing here about the time I get back.

* * * * *

"There are about 430 animals engaged in packing between Telegraph Creek and head of Dease Lake, and some 50 more are expected to arrive from Quesnelle, overland.

"There have been two deaths in this camp this year—Frank Domines and George Walters, the former died on 8th of April at head of lake, and latter on 24th instant at Laketon,—both died from natural causes.

"Great dissatisfaction prevails throughout the entire district in consequence of there being no mail communication established between Victoria and Cassiar; all suffer alike, as regards irregularity and excessive charges, on what does get here by the Cassiar Express.

"Since my arrival the weather has been very unseasonable, raining nearly every day, and very cold.

"I am happy in having no criminal cases to report.

"With a view towards the security of Government moneys in this district, I would suggest that an iron safe be forwarded to this office.

* * * * *

(Signed) "I have, &c.,
"ARTHUR W. VOWELL.

"The Hon. Provincial Secretary,
&c, &c., &c."

"LAKETON, CASSIAR,
"July 23rd, 1876.

"SIR,—I have the honour to report, for the information of His Honour the Lieutenant Governor, that I visited McDame Creek on the 7th instant, and have much pleasure in being able to state that I found everything on my arrival looking well, the miners in general looking forward to a tolerably prosperous season.

"There was a great deal of business to be done during my stay there, keeping me employed from morning till night for thirteen days.

"The claims, as a general thing, have not yet, owing to lateness of season, been thoroughly opened, and consequently no opinion can be formed as to the probable yield.

of gold this season. Some few claims were at work and paying from ten to twenty dollars a day to the hand. On Snow Creek, the Discovery Company was paying a dividend of \$600 per week to the interest. The Dunlop Company, adjoining, was paying 2 oz. a day to the hand, and several others are at work on that creek with very fair prospects.

"On Quartz Creek a great deal of prospecting is being done, but as yet no definite idea can be formed as to its richness or otherwise.

"A discovery has been made in a place called Pleasant Valley, about 2½ miles from Snow Creek, and very nice gold taken out. It prospected \$22 50 to 140 buckets.

"On McDame Creek very few creek claims have been prospected, owing to the amount of water constantly in that stream.

"For some distance on that creek, it is considered, should water be available, that the banks would afford remunerative employment to quite a number of men.

"There are about seven hundred men on McDame Creek.

* * * * *

"I have, &c.,

"The Hon. the Provincial Secretary,
"Victoria."

(Signed)

"A. W. VOWELL

"LAKETON, CASSIAR,

"August 31st, 1876.

"SIR,—I have the honour to report, for the information of His Excellency the Lieutenant-Governor, the following particulars relative to my district:—

"The prospects as to the yield of gold in Cassiar for 1876 are, I regret to state, far from realizing the general anticipations of the spring. Although several discoveries, already reported on by me, have been made, unfortunately they have not proved extensive; and not being of a class to afford remunerative employment to any great number of men, as discoveries they are of little importance.

"Many claims on the different creeks, which paid and prospected well last season, have proved worthless this year, upsetting calculations which, in accordance with what is generally known to govern such events, were based almost upon a certainty.

"The unexpected and, from the results of the past two seasons, the unjustifiable rush to Cassiar this spring, in a great measure accounts for the general depression which affects alike the miner, the merchant, and the packer. Such an influx instead of helping the district has had the contrary effect, inasmuch as more than half the entire population here this season had absolutely nothing definite to come to, and in fact were for the most part strangers to the country, whose advent necessarily kept up the price of provisions and lowered the rate of wages.

"When we contemplate the above facts and, in addition, take into consideration the backwardness of the season, the unusually high freshets—which in many cases destroyed nearly a summer's work,—the difficulties in the way of prospecting, the shortness of the season, the high price of provisions, the limited means of the majority of the men, and the consequent amount of credit obliged to be given by the merchants in addition to what was already on their books from the past two seasons, it is not altogether a matter of surprise that this season should not be a propitious one for those engaged either in mining or in trade.

"There are, however, many claims on the different creeks paying well; and had the number of miners been confined to within anything like a reasonable limit, or to what it was last year, say from six to eight hundred men, the prospects for 1876 would appear in a much more favourable light.

"I enclose a list of companies at work on the different creeks as an example. It must be borne in mind, however, that a great many claims are paying much better than is generally reported, as, without exception, the miners distinctly refuse to inform anyone as to the amount their respective claims yield.

"I have been most assiduous in my efforts, have, in fact, left no means untried to obtain something like an approximate return of the gold coming out this year, but without any satisfactory results. Such enquiries seem to be looked upon with suspicion, and the actual returns from the various claims are kept with a jealous care from the knowledge of all and everyone save the immediate owners.

"Sayyee Creek has turned out a complete failure, notwithstanding the excellent prospects obtained last autumn. Mr. Levi Harris, one of the discoverers and one who is well-known as a good practical miner, has returned, and reported that the rich prospects of last fall have dwindled down to not more than from \$2 50 to \$4 a day to the hand.

"Accounts from McDame Creek are not flattering,—mining there being of a most uncertain character, and full of disappointments. Getting good prospects on that creek amounts to nothing, as the gold is only found in spots, and consequently such a thing as getting on the *lead* and being able advantageously to follow it is as yet unknown.

"Such being the case the present depression seems most natural, as the prosperity of any large body of men is proved by the success of the majority; unfortunately the majority are here unsuccessful; but why? Simply because a burden was placed upon the district that it could not bear, and that there was nothing on record to justify. The most striking inference to be drawn from such an unsatisfactory state of things being that, it is owing more to the recklessness of the numbers who have flocked here this season than to any material falling off as to the comparative richness of the district of Cassiar.

"Prospecting is now being carried on in the deep ground on Thibert Creek, and on the upper portion of Dease Creek, with every hope of success. Should pay be there found, diggings will be opened up which will afford for years employment to many men.

"Excellent prospects have been obtained in the hills from eight to twelve miles up Dease Creek, but owing to the ground being frozen quite solid much difficulty and expense is experienced in working. One set of claims, which are a sample of many, have succeeded in running a tunnel, for a distance of 150 feet, by heating stones, piling them against the face of the tunnel, and then covering the stones with earth; when it is considered that the heated stones have had the desired effect, they are removed, and so much of the pay dirt which has been thawed taken carefully out and washed; notwithstanding such a slow and expensive process, the ground, after they had got in some distance, payed from \$10 to \$15 a day to the hand. The ground has been found to be frozen for a distance of over 40 feet from the surface level, and for more than a 150 feet from the slope of the hill or entrance of the tunnel. Should they succeed in getting through the frost and keep on the present *lead*, that ground would prove as rich as any yet discovered in British Columbia.

"I have no hesitation in stating that next year promises to be as successful as any that Cassiar has yet known, for the simple reason that it stands a chance of not being overdone. The lesson learned by a great many this season is not likely to be soon forgotten, and is certain to act as a deterrent against all future ill-advised rushes to a country unknown as to the rigors of its climate, and the many difficulties which beset the inexperienced miner and new-comer generally.

"I have visited the different creeks and inspected them for a distance, in some instances, of twenty miles and upwards. I have found them to have all the appearance of such creeks as, from experience, have been found to contain rich auriferous deposits; and the country generally gives evidence, according to the most approved theories established by practical miners, of being one rich in minerals and of great extent; but owing to the convulsions of a volcanic nature, which have agitated and entirely changed the original formation of the country, these valuable deposits are only found in spots; the *lead*, as it is generally understood in other mining districts and countries, being, with few exceptions, disconnected by these subterraneous disturbances and impossible to follow; thus rendering most of the rich discoveries already made in the district but the precursors of disappointment to the many, proving only a source of wealth to the few.

"Silver has been found in all its native purity; and but a short time since a piece of pure copper, weighing some fifteen pounds, was picked up in a claim on Boulder Gulch, a tributary of Thibert Creek.

"However, the country notwithstanding its drawbacks has, amongst other precious metals, so much gold scattered through it that it affords profitable employment to a greater number of miners than any gold fields existing at the present day, at least that come immediately under our notice, and are of comparatively easy access to the miner.

* * * * *

"I am happy in being able to report that this camp has been very free from crime this season, which considering the population—at one time in the neighbourhood of

two thousand, exclusive of Indians—is a matter of congratulation. There are only two cases on record, neither being of a very serious character.

"Owing to the severity of the winter, very few miners will remain either on Dease, Thibert, or McDame Creeks after about the middle of October; some hundreds it is thought will winter at Glenora; should such be the case, as my presence is most required at the centre of population, I will have to make arrangements to winter there also, returning to Laketon early in the spring.

* * * * *

(Signed) "I have, &c.,
"A. W. VOWELL.

"The Hon. the Provincial Secretary,
"Victoria."

"LIST OF CLAIMS WORKING ON McDAME CREEK, 1ST SEPTEMBER, 1876.

Name of Claim.	No. of men.	Remarks.
Hilton Claim.....	Not given	Making about 60 oz. per week.
Copper Alek Claim	"	Paying \$14 per day to hand.
Keenan's Claim	"	Paying well.
Long Andrew Claim	"	\$50 to the pan last week.

"On Snow Creek there is a long flat which prospects well, and if water were introduced would probably supply 200 men with wages from \$10 to \$20 per day for a season.

"On Quartz Creek some discoveries of good hydraulic diggings have been found.

"On Rosetta Creek two companies are doing fairly.

"LIST OF MINING CLAIMS BEING WORKED ON THIBERT CREEK, 10TH AUG. 1876.

Name of Claim.	No. of men.	Remarks.
Fagan Co.....	2	Prospecting for back pty.
Morning Star Co	6	Six dollars per day per hand.
Enterprise Co	4	Prospecting.
Rath Co. (Bench)	20	Good wages.
Shearer Co.....	4	Do.
Farned Co.....	3	Paying well.
Wrangel Co. (Creek).....	5	Prospecting.
McDonald Co.....	2	Not paying.
Vitelle Co.....	1	Paying wages.
James Co	3	Paying good wages.
Collins Co	10	Do. do.
Discovery Co.....	4	Do. do.
Hidden Treasure Co.....	5	Do. do.
China Co	12	Do. do.
Reed Co	3	Do. do.
Mackay Co.....	2	Do. do.
Moore Co	3	Prospecting.
Lord Co.....	3	Paying wages.
Waldron Co.....	4	Do.
Three Frank Co.....	10	Opening with hydraulic.
Portland Co.....	6	Do. do.
No. 2 Co.....	2	Paying well.
Black Diamond Co.....	2	Prospecting.
Smithy Co.....	3	Paying wages.
Mahoney Co	4	Prospecting.
Arctic Co.....	3	Do.
French Co.....	4	Do.
McCullough Co.....	4	Paying wages.

LIST OF CLAIMS AT THIBERT CREEK.—Continued.

Name of Claim.	No. of men.	Remarks.
Dan Dore Co.	4	Prospecting.
Olympia Co.	4	Paying wages.
Flying Co.	6	
Hefron Co.	4	
Black Hawk Co.	7	
Sutton Co.	2	
Nip and Tuck Co.	2	
Eureka Co.	4	
Sam Hughes Co.	2	
Perseverance Co., No. 1.....	8	
Do. No. 2.....	8	
Victoria Co.	4	
Ottawa Co.	4	
Berry Creek	25	One claim paying well; others prospecting.
Boulder Creek ¹	12	Small wages.
Australian Co.	5	Do.

"LIST OF CLAIMS WORKING ON DEASE CREEK, CASSIAR, 1ST SEPTEMBER, 1876.

Name of Claim.	Remarks.
Walsh Claim.....	Prospecting.
Victoria Claim	Do.
Sheerer Claim.....	Do.
Hopkins Claim.....	Good prospect.
Winter Stake Claim	Wages, (about \$7 per day per man.)
Sunburst Claim	Sinking.
Wyoming Claim.....	Wages.
Holroyd Claim	Paying well,
Three to one Claim.....	Fifty dollars per week to hand.
Wellington Claim.....	Fourteen to sixteen dollars per day to hand.
Caledonia Claim.....	Reported \$1,000 per week to interest.
Jones Co. Claim.....	Paying wages.
North Star Claim.....	Paying well.
Rath Co. Claim.....	Do.
Lyons Claim.....	Good wages and over.
Side Wiper Claim.....	Do. do.
Discovery Claim.....	Ground sluicing.

From this point upwards for three miles there are a few Chinese Companies working upon abandoned ground.

Diamond Claim.....	Thirty ounces per week.
Carrigan Claim	Good wages, (from \$10 to \$16 per day.)
Water Lily Claim.....	Paying very well.
P. Harris Claim	Apparent failure.
Godfrey Claim	Not down.
Booth Claim	Good wages
Welch Claim.....	Wages.
Humphries' Hill Claims	Fifty-one dollars to two pans; tunnel in about 100 feet, 50 feet below the surface.

" LAKETON, CASSIAR,
" October 16th, 1876.

"SIR :

* * * * *

" Good indications have been found in the hills and benches on the different creeks, and next year is looked forward to by all with every prospect of success.

" It is not expected that there will be as many men in the district, but it is believed that those coming in next spring will have better prospects and of a more defined nature than any hitherto known to exist.

" The benches on McDame Creek, for miles, prospect richly ; and all that is required to open up diggings for a large number of miners is water. As there have been applications made and leases granted, subject to the approval of the Government, for ditches to convey as high as two thousand inches, that difficulty, I am happy to be able to state, is in a fair way of being overcome. Active operations have been already commenced, so as to have the water about to be brought in available upon as early a date as possible next season.

" Although, on the whole, the mining on Thibert Creek has not been remunerative this year, yet I cannot say it has been unsuccessful, as, in addition to those claims that have paid fairly, there has been discovered in the benches what is considered to be the old channel or bed of the creek, and all interested therein are very sanguine as to their success in 1877. Many good sized nuggets have been taken from there, the highest weighing something over 18 oz. The gold obtained seems to have been a good deal *washed*, which is a very favourable indication.

" Dease Creek has also something to look forward to from its hills, which, as far as is at present known, promise to be very remunerative.

" This district is a very extensive one, and beyond the creeks already enumerated, and their tributaries, but very little is known. Sayyea Creek, on the Deloivre, there seems to be a variety of opinions about, and from all I can learn it, or its vicinity, has not yet been anything like prospected. From the evidence already obtained it is not unreasonable to expect that upon a more systematic examination it may prove a valuable addition to the Cassiar district.

" The Takoo country, which lies in a north-westerly direction from Dease Creek and is about 100 miles distant, also offers inducements to the enterprising miner, very good prospects having been discovered there. It is at present a country very little known, but from what I can learn is of comparatively easy access, and not very inhospitable in its character.

" On the head waters of the Stickeen, which are situated about 75 miles from the head of Dease Lake in a southerly direction, very good prospects have also been found, and several men intend going there next spring. Thus it will be seen that this country is comparatively in its infancy, and if only proper facilities can be established for getting in supplies so that they can be furnished to the miners at a reasonable rate, this mining district will be a successful one for years to come.

" Laketon, Dease Creek, being the most central situation, and taking in as it does Thibert Creek, which is only 12 miles distant, will continue to be the principal business depôt in the district. From here all the goods are forwarded to other creeks, *via* Dease Lake and Dease River, and as the town consists of many substantial business houses, there is no likelihood of any change taking place.

" It will be seen by enclosed returns, that as near as it is possible from claims recorded &c., to arrive at the actual yield of gold from the different creeks, the respective amounts are as follows, viz:—

Dease Creek	\$160,300 00
Thibert Creek.....	139,720 00
McDame Creek.....	163,700 00
	<hr/>
	\$463,720 00

" As there has during the past season been a good deal of irregular mining going on of which no trace could be kept, I have from the closest enquiries come to the conclusion that 20 per cent. may with safety be added to the amounts already given, which

will, without any material difference either way, give a correct estimate of yield of gold in the Cassiar district for 1876; the total amount would then be \$556,474.

"From latest accounts it is estimated that about 75 men, Chinese included, will winter on Dease and Thibert Creeks; and from 10 to 20 on McDame Creek, some 30 intend wintering at Telegraph Creek, and about 200 at Glenora on the Stickeen.

"There is a large stock of provisions in the district at present, which precludes the possibility of there being a scarcity of supplies in the coming spring, and consequent increase of rates demanded.

"I enclose a list of the prices current, &c.

"I have &c.,
(Signed) "A. W. VOWELL.

"The Hon. the Provincial Secretary,
"Victoria."

"PRICE LIST OF PROVISIONS FOR OCTOBER, 1876.

	DEASE CREEK.	McDAME CREEK.
Flour, per lb.	\$0 20 @ 0 25	\$0 30
Bacon ,,	0 40 @ 0 45	0 50
Ham ,,	0 45 @ 0 50	0 55
Beans ,,	0 24 @ 0 25	0 30
Sugar ,,	0 35 @ 0 45	0 50 @ 0 55
Tea ,,	1 00 @ 1 25	1 25
Coffee ,, roast	1 00	1 25
Do. ,, green	0 60 @ 0 65	
Rice ,,	0 35 @ 0 36	0 40
Oatmeal ,,	0 35	0 45
Fruit ,, Aldin dried	0 50	0 60
Apples ,, dried	0 45	0 50
Fruit, per can	1 25	1 25
Beef, ,,	1 25	1 50
Currants, per lb.	0 50	0 70
Onions ,,	0 35	0 45 @ 0 50
Potatoes ,,	0 25	0 33
Do. per can	1 00	1 25
Do. ,, sweet	1 00	1 25
Peaches ,,	1 25	1 50
Do. per lb. dried	0 50	0 55
Brandy, per gall.	8 00 @ 9 00	10 00
Whiskey ,,	7 50 @ 8 00	10 00
Boots, per pair	7 50 @ 12 00	10 00 @ 12 00
Do. ,, gum	9 00	11 00
Nails, per lb.	0 40	0 40
Shovels, each	3 50	4 00
Picks ,,	6 00 @ 7 00	9 00
Axes ,,	3 50 @ 4 00	4 00
Steel, per lb.	0 50	0 60
Iron ,,	0 45	0 50
Tobacco ,,	2 00	2 00
Beef ,, fresh	0 25	
Butter ,,	1 00	1 00
Meals	1 50	1 50

CARIBOO.

The yield of gold in Cariboo, for the year 1876, is estimated by the Government Agent at \$646,000, as against \$760,000 for 1875. The falling off is chiefly in the rich claims on Lightning Creek, which alone produced over \$500,000 in 1875.

From the report annexed, it will be seen that the unprecedented high water was much against the Lightning Creek claims, while hydraulic claims, owing to the favourable season for that purpose, have continued to work latter than usual, and have not been "cleaned up," so that the returns from such claims are not included in the detailed statement.

The probable success of the Eleven of England claim is very important, as being a test of the value of the lower part of Lightning Creek hitherto undeveloped.

Several new Creeks have been opened, among which Canyon Creek attracts considerable attention.

The working of quartz ledges is also attracting notice, and a company has been organized to test ledges that have been discovered.

The general tenor of the Agent's report may be considered highly satisfactory.

" RICHFIELD, 4th October, 1876.

"SIR,—I beg to transmit you my Annual Report and Mining Statistics for the nine months ending September 30, 1876. I am gratified to state that Cariboo still retains its prominence as the chief gold-bearing district of the Province, though the yield of gold has not been as large as last year, owing to the unprecedented high water, which has operated against the working of some of the claims on Lightning and other creeks, whilst many of the hydraulic claims have not yet cleaned up, the favourable season having enabled them to pipe much longer than usual.

"The greatest care and attention have been paid to make the statements of amounts procured by the various mining companies as reliable as possible. But the unwillingness of some to make their business public, and the inability of others, through not having kept a proper account of the same, leave a great deal to the discrimination of the enquirer, thereby interfering with that accuracy which would be desirable.

"On Williams Creek but little work has been done this summer in the deep or drifting claims, caused by the protracted freshet. The hydraulic claims have, however, reaped the benefit of a good supply of water during the season. Hydraulic mining has been hitherto confined to the right, or eastern, bank of the creek, but during the summer good prospects were obtained on the west side, above Mink Gulch. Several companies have located claims, one or two of which are paying well. The Forest Rose and St. George Co. are the second company (the Black Jack being the first) to initiate hydraulicing in the hill below the cañon, having constructed a flume, run a ditch about a mile long, and made extensive preparations for next year's work.

"On Lightning Creek the high water has prevented the accomplishment of work to any extent since last spring. The principal companies have started their pumps, and it is expected that it will take over a month to free the diggings from water. The Eleven of England Co., about one mile below the town of Stanley, have struck pay, which has been gradually increasing every week. Should it prove to be remunerative, it will be a most important discovery, practically testing a large portion of the lower part of the creek.

"Nelson, Coulter, Burns, and other tributaries, or contiguous creeks to Lightning, you will observe, have paid about equal to former years. Canyon Creek, about thirty miles north of Stanley, a tributary of Willow River, is attracting considerable attention, where two large companies have been located, one of which is prospecting with extensive machinery erected for that purpose.

"The valuable claims on Jack of Clubs have been lying idle this year, the expense incurred in finding the deep channel, running through the Discovery Co.'s ground, having caused them to defer working until next year, when operations will be actively renewed.

"The Victoria Co., on Cunningham Creek, have erected costly machinery and employed twenty men, for the exploring of the deep ground, which had been previously attempted by other companies, but without success. They have pumped the water out of the old shaft and will proceed to sink without delay.

"I may also remark that the bars of the Fraser River still attract a considerable number of Chinese, about 100 being engaged in mining between Soda Creek and Fort George, with an average return of from \$2 to \$3 per day.

"The estimated product of treasure from all sources, exclusive of that section of the country embodied in Mr. Oliver Hare's report, which includes Harvey and Keithley Creeks and the Forks of Quesnelle, is \$646,377.

"Amount exhibited in Mining Statistics.....	\$361,377 00
"Estimated amounts unaccounted for.....	125,000 00
"Probable value of yield for last three months of 1876.....	160,000 00

"Making the approximate total for 1876.....\$646,377 00

"The Bank of British Columbia purchased for the nine months ending September 30, 1876.....	\$225,000 00
"The Bank of British North America bought during the same period...	210,775 00
"Leaving in private hands.....	50,602 00
"Probable yield during months of October, November and December...	160,000 00
	<u>\$646,377 00</u>

"Taking into consideration that not only the Province at large shares to a great extent in the prosperity of this district, but that also a large agricultural population is entirely dependent on Cariboo for a market for its produce, it is obvious that efforts should be made to regain, if not all, at least a portion of the prosperity which prevailed in former years, by the developing of the rich quartz veins which abound throughout this district.

"The first step in this direction has been recently taken to secure the benefits arising from this permanent source of wealth. A company has been organized for the purpose of testing and working the ores taken from various ledges in the vicinity.

"The 4-stamp mill purchased some years since has been erected at Richfield, adjoining the sawmill of Messrs. Meacham & Nason, who have kindly placed the motive power of their steam engine at the disposal of the company. Rock is being taken from a ledge which can be traced for a considerable distance on either side of the mountain, at the summit of the trail leading from Barkerville to Lowhee. The lode averages from twelve to eighteen feet in width, and exhibits indications of the most favorable character, excellent prospects having been obtained from the croppings by Messrs. W. Forrest and A. Watson, the latter of whom, I understand, assayed a portion of the ore with a result of \$80 in gold, and the same amount in silver, to the ton.

"Quartz is also being taken from a seam in the cañon, which seems to contain a good proportion of gold, and a quantity of rock is at present being prepared for milling in order to test its true value.

"Mr. W. Holmes owns a ledge near Six-Mile Creek, a tributary of Swift River, from which some 50 lbs. of quartz was sent to San Francisco for assay, and a return made of \$125 in gold and silver to the ton. He is now engaged in running a tunnel to strike the ledge at a greater depth.

"The mill will shortly be ready for crushing, and, should the results prove successful, measures will be taken to procure more extensive machinery, thus inaugurating a new era in the mining annals of this Province, the advantages of which cannot be over estimated.

"Public attention has been of late directed to the feasibility of working Williams Creek from the surface to the bed-rock, by the construction of a flume about 2½ miles in length, at an estimated cost of \$150,000. Starting from the falls of Valley Creek and striking rock at a depth of 70 feet, would enable the working of the most valuable portion of the creek from the Ballarat claim to the cañon, and render productive a large area of hill claims, which, under the present expensive system of drifting, does not pay wages.

"The pecuniary advantages offered to a company formed for the above purpose need no mention. It is impossible to calculate the immense amount of wealth still lying in the gravel deposit of Williams Creek, which must eventually attract the attention of capitalists to the accomplishment of this valuable undertaking

"I have, etc.,

(Signed)

"JNO. BOWRON.

"To the Hon. the Minister of Mines."

From the Keithley Creek portion of the Cariboo District the agent, Mr. Hare, reports a yield of gold for 1876 from the Quesnelle and Forks equal to that of last

year, although there were greater difficulties to contend with. On Keithley and Harvey Creeks a considerable falling off has taken place owing to the great freshets.

This section of country seems to be almost exclusively occupied by Chinamen, who, according to Mr. Hare's report annexed, are not so prone to save their earnings as is generally supposed, and contribute considerably to the revenue.

"FORKS OF QUESNELLE,

"September 20th, 1876.

"SIR,—I have the honour to forward, herewith, my report of the mining statistics of the Keithley District, compiled from information gathered on my annual visit to the claims, and in most cases obtained from the actual owners. I consider it a tolerable fair estimate of the yield of gold.

"As I have before pointed out, the white miners are in most cases willing to give information; but the Chinese (with whom I have most to do) are by nature reticent and untruthful in their answers, especially when it touches their pockets; this I find to be the case more among new arrivals from California than those who have resided here any length of time and who have confidence in me, and have found out they are no heavier taxed than the white miner; therefore, I think their account is not much wrong, certainly more likely to be under than over estimated.

"The claims on the Quesnelle and forks have yielded on the average equal to last year, although there were greater difficulties to contend with in the spring in opening them out. No wing-damming was attempted, either on the north or south fork, last winter.

"Owing to the severe cold the river fell unusually low in February and March last, giving the Chinese a good chance for working among reefs and shoals to advantage. They also adopted a new style of mining in the south fork; rafts of logs were moored in the stream, on which were generally three Celestials, two of whom had shovels and picks with handles eight to ten feet in length, for scooping up the dirt from the bottom of the river, which the third person passed through his rocker; although a tedious process, they managed to get from three to four dollars per man per diem of only a few hours. I saw nearly every day's proceeds, therefore feel quite safe in stating that at least \$3,000 can be added to the estimated yield of the claims. There is every probability that mining to the same extent will be carried on many years in this section of the country; nearly all the benches of the river have gold that will pay if water can be got on them, which will be accomplished some way or other. The Chinese have it all their own way; the white miner seems to have set his face against this part of the country, or rather than take the chances of four dollar diggings he will hunt till he nearly starves searching for better; not so with the Chinaman, if he gets a claim that will pay fair wages he sticks to it, and if it pays better, so much for luck; anyway it is better than running over the country after an uncertainty. Many persons suppose that a Chinaman can afford to work for less wages because his style of living is so much cheaper, but let me tell those persons that John is as fond of good living as they are. When I go to a Chinese cabin I can tell nearly at a glance if the claim pays by the number of oyster, lobster and sardine tins, also China wine and Hennessy brandy bottles lying around their domicile.

"I am sorry to have to report that the outlying creeks have fallen off very much in their yield of gold, especially Keithley and Harvey; one reason is many of the old paying claims have been worked out and abandoned; only two are working on Harvey this season, and one of them (the Cummings) is at present only prospecting, but it is expected to pay well next year, the other (the once famous Minnehaha) is all but abandoned. On Keithley last year, the great drawback to mining operations was the long drought, but this year the reverse has been more serious, for during the whole season there have scarcely been two successive weeks of dry weather, so that most of the labour was expended in guarding against freshets, and clearing out flooded diggings. A great many Chinese miners have left for other districts not being able to get work here, but most of them will be back again to winter quarters. The town of the Forks is their general rendezvous; last winter more than two hundred lived there and upon the whole kept themselves very peaceable. I had considerable trouble with gamblers at the commencement, but succeeded in preventing them carrying on their games publicly. The whole of the trading at the Forks is done by Chinese; there are several good stores

there, also two butchers, a blacksmith and a watchmaker; three of the storekeepers have liquor licenses, and two of them opium ditto. On Keithley there are six stores, five of which have liquor licenses. A vast quantity of spirits are consumed among the Chinese, but strange to say one never sees a Chinaman intoxicated or quarrelsome in the streets.

"I have, etc.,
(Signed) "OLIVER HARE,
"Government Agent.

"The Honourable the Minister of Mines."

FRASER RIVER.

A good deal of desultory mining is carried on along the banks of the Fraser from Quesnellemouth to Yale, of which it is very difficult to obtain accurate or detailed information. The agents at Lillooet, Yale, and Lytton, have made returns showing a yield of gold amounting to some \$42,000 which, though not of much consequence in itself, goes to increase the general yield of gold in the Province.

The reports of these agents are annexed.

Good prospects have been found by Chinamen at the head of the celebrated "Hills Bar" below Yale, which induced them to construct a costly ditch; the agent, Mr. Teague, reports a yield of five to seven dollars a day to the hand.

There is no doubt that the deposits of gold below Yale are far from being exhausted.

Mr. Teague's remarks as to the prospects of Silver in the Hope section are encouraging and worth perusal.

"YALE, 28th September, 1876.

"SIR,—In pursuance with your request of the 7th July last, I beg to forward herewith my report, with mining tabular form for 1876, showing statistics of mining for the Yale and Hope division, by which you will perceive that mining in these localities is not diminishing since my report of last year. I am pleased to inform you that the company of Chinamen alluded to therein as prospecting immediately at the head of "Hill's Bar," have found very encouraging prospects, extending into the bank of the large flat, proving sufficiently rich to induce them, at a considerable expenditure, to complete a large water ditch of over a mile and a half in length, and where difficulties had to be overcome in perfecting the grade by fluming, in order that they might have a full supply of water. They have just fairly started to work the ground, and with the most satisfactory results. The claim-yield, which I learn from reliable sources, is from \$5 to \$7 per diem to the hand. Attention is being drawn to the large flat bearing placer deposits, which is marked with general characteristic indications, remaining at the head unexplored, and doubtless where extensive prospecting will shortly follow with equally as good returns, no doubt adding a new era to mining industries in the valley of the Fraser. The mineral resources of these localities are very great and no doubt valuable. Ledges containing silver, copper, hematite and lead are found in abundance throughout the divisions; and on several occasions specimens of silver-bearing rock of a most satisfactory character have been taken from the croppings of the ledges by parties prospecting, from which tests of silver have been given of a very promising nature. Within the past few weeks (as usually is the case at this season of the year), several parties have been out on a prospecting tour, and several newly discovered lodes are reported, and some fine samples of rock are exhibited by George Gordon and others, but the whereabouts of Gordon's ledge is kept a secret until the returns of assays are known, when I hope an enterprising company will be formed and the ledge fully proved. An Indian gave Mr. Wm. C. Mayes some rock taken from the outcrop of a vein discovered in the neighbourhood, near the Indian village at Cheam, and curiosity induced him to send it to California for assay. The returns were received a few days since from the "Nevada Metallurgical Works," giving silver 5.22, gold .08 oz. per ton of 2000 lbs., in which it was remarked by the assayer, "Wherever the rock was found it is most likely better silver ores will be found if the vein were carefully examined." The vein, as I ascertain from the Indians, is from four to eight feet wide, easy of access, and about half a mile distant from the Fraser. The same discoveries and tests made in Nevada would un-

doubtedly create a furore amongst capitalists; but here it is singularly remarkable that it creates scarcely a ripple of excitement, and scarcely an effort made to develop a test 100 feet in depth upon any vein from the outcrop. These are certainly remarkable features, when experience of mining operations in Mexico and Nevada went to show that the lower the workings were carried the better the ores proved to be. Having regard, therefore, to that fact, I feel somewhat confident in the future wealth of mining in these localities when capitalists are willing to develop the mineral resources in these divisions. During the year two silver mining licences have been issued, but the ledges have been but little wrought upon. There are four whites prospecting on Siwash Creek, but with what success is not yet ascertained. They are under the superintendence of Mr. Henry Masters, of Burrard Inlet, and are prospecting for quartz, as it is believed by experienced miners that from the appearances of the gold obtained, rich gold-bearing ledges exist on Siwash Creek.

"I have, etc.,

(Signed)

"WILLIAM TEAGUE.

"The Hon. the Minister of Mines,
"Victoria. B. C."

KAMLOOPS, September 26th, 1876.

"SIR,—I have the honour to report, in compliance with request contained in circular of 7th July, 1876, that mining operations in this section of Kamloops Division, District of Yale, are of a very limited character, being confined wholly to ten or twelve Chinamen who are working on Tranquille River, a small stream emptying into Kamloops Lake, about ten miles in a westerly direction from the town of Kamloops. This river, as far back as the years 1861 and 1862, was the scene of considerable mining activity; then a number of miners worked portions of the bed of the stream, making from five to eight dollars a day to the hand. Up to the year 1871 a few white men were occasionally at work prospecting, working over old diggings; since then to the present time, Chinamen have been in undisputed possession, working for the most part on the bars. Owing to their reticence it is difficult to ascertain the amount of gold dust taken out by them, but it is fair to presume that their remuneration per day to the hand is very small, as they are always willing to hire out among the farmers in their vicinity, during the mining season, for one and a half dollars per day—irrigating or anything else they have for them to do.

"On a creek emptying into the North Thompson river on West side, about twelve miles from its confluence with the main river at Kamloops, encouraging prospects have from time to time been got. Last spring a company of Chinamen endeavoured to open a claim but were driven out by the unusual high water, and have not since resumed operations.

"I have, etc.,

(Signed)

"JOHN USSHER.

"Charles Good, Esq.,

"Deputy Provincial Secretary, Victoria."

LILLOOET, B. C., 27th September, 1876.

"SIR,—I have the honour to forward to you herewith enclosed Mining Statistics relating to this vicinity.

"The only mining enterprise of any note in this section is that of Ah Sam; he has commenced the construction of a ditch to take water from the Fountain Creek and convey it to the various bars and flats between the Fountain and Horse Beef Bar on the East side of Fraser River. The ditch when completed will be ten miles long; about one third the distance will have to be flumed. The ditch will carry five hundred inches of water and will cost about \$14,000. The work is already more than half accomplished.

"All the mining in this portion of the district is carried on by Chinese and Indians and is confined to the banks of Fraser and Bridge Rivers. The Chinese are mostly engaged on the Fraser and use sluices where water can be got; the rocker is also used, especially early and late in the season, when the water is low, and very rich deposits are often found. In some localities the gold is coarse while in others it is very fine and quicksilver has to be used to save it. The mining season is about eight months, from the middle of March to the middle of November. There are about sixty Chinese engaged in mining, and they average about \$2.50 per day.

"There are about three hundred Indians who mine more or less during the season; they prefer Bridge River and the localities on the Fraser, where the gold is coarse, for their mining operations; they use the rocker and save the gold by means of a blanket or gunny sack in the bottom of the rocker; they often find very rich spots among the rocks where neither Whites nor Chinese look for gold. Last spring, in March, one family of Indians, about ten miles below Lillooet on the Fraser River, took \$1,500 from the crevice of a rock.

"I have, etc.,

(Signed)

"A. W. SMITH.

"The Honourable A. C. Elliott,
"Minister of Mines."

"Government Agent, Lillooet."

OKANAGAN.

A new section of country has been developed during 1876, namely the mines of Cherry Creek and Mission Creek in Okanagan District.

Mr. C. Vernon, who has been appointed to act as Gold Commissioner, reports that 20 men are employed on the former and 12 on the latter Creek, the yield on Cherry Creek being \$4 to \$5 a day, and on Mission Creek \$3 a day. He further reports that some \$8,000 have been taken out.

The proximity of these Creeks to farm settlements will render living very cheap, and if the diggings are as good as is anticipated important results may follow, particularly the development of Silver known to exist on Cherry Creek.

"OKANAGAN, B. C., December 18th, 1876.

"SIR,—I beg to inform you that not having been authorized by the Government to visit the mining camps on Cherry and Mission Creeks (80 miles apart,) I am unable to make any accurate report with regard to the permanent richness of the diggings. I wish, however, to mention that the claims which have been paying on Cherry Creek are situated on the benches, about 50 or 60 feet above the level of the creek. Furthermore, from the statements of the miners who have been employed there this season, it appears that a bona fide seam of pay dirt has been discovered, which will yield, on an average, about \$6 per day to the hand. Two men named Pierre Bissett and Geo. Leblanc, who returned from the creek a few days ago, brought with them \$540 in dust, which they have taken out of their claim since the 14th November (one month), at which time nearly all hands left for winter quarters.

"There are several companies of Chinamen at work, but it is impossible to find out their average daily yield. None of these claims have been recorded, nor are the Chinamen, to my knowledge, in possession of the required certificate. This loss to the Provincial Treasury will, I hope, be remedied next year by the influx of miners, which will necessitate every miner complying with the Government laws by recording his claim. Two men, named Squires and Thorpe, who had been working all the summer on the Okanagan Mission waggon road, left for Cherry Creek a short time before the completion of the work, for the purpose of prospecting, and took out \$90 for a few days' labour. They have recorded claims about one mile above the Christian claim, on the opposite side of the river, and packed up provisions, intending to commence work in the early spring.

"I beg also to call your attention to the present impassable state of the trail from swamp and fallen timber, and to request that you will endeavour to have a new trail opened in the early spring. This, in my opinion, will cost at least \$1,000.

"Considerable mining and prospecting has also been done on Mission Creek this fall, with a fair average yield of gold.

"John Williams, an old Caribooite, has run a tunnel into the hill from the creek some 60 feet, and found a good prospect.

"Kopp & Co. have also recorded 300 inches of water, and are now busy sawing lumber for fluming a portion of the main creek from the cañon to their ground. Five men are interested in this company, who have all recorded their claims and are sanguine of doing well next season.

"The McDougall Co., of four men, have recorded claims below the Kopp Co., and as they took out considerable gold last month of a coarse quality, are sure of a good season's work next year.

"It is sincerely to be hoped that a good mining camp will be formed both on Mission and Cherry Creeks next season, as, being essentially a farming country, produce of all kinds is both cheap and plenty.

"I have, etc.,
(Signed)

"CHAS. A. VERNON.

"Charles Good, Esq.,
"Deputy Minister of Mines."

KOOTENAY.

The Returns from Kootenay are not satisfactory.

The estimate of Gold yield for 1876 is only \$25,000 as against \$41,000 for 1875.

The Gold Commissioner, Mr. Booth, reports that a great deal of labour and money is being expended in order to bring in water at a sufficient height to mine the hills and benches of Wild Horse Creek, from which favourable results may be expected; his report is annexed.

"KOOTENAY, B. C., November 1st, 1876.

"SIR,—I have the honour to forward herewith mining statistics for the District of Kootenay for the year 1876.

"There have not been any new discoveries of gold diggings in this district since my report of last year, but there has been a very considerable amount of labour and money expended in constructing ditches and flumes, in order to convey water at a sufficient height to mine the hills and benches on both sides of Wild Horse Creek to advantage.

"The Hang Co. (Chinese) dug a ditch on the south-east side of Wild Horse Creek last winter, four miles in length, capable of carrying from three to four hundred inches of water, at a cost of about \$3,000, and with it worked their hydraulic claim through the season with fair success.

"The new Victoria Ditch Co., on the north-west (or opposite) side of same creek, commenced last, and will complete this, winter, a ditch four and one-half miles long, with a dam seventeen feet high at ditch head; will be capable, when completed, of carrying from 500 to 700 inches of water. Total cost, from \$10,000 to \$12,000. Those ditches will enable miners to work a large area of ground hitherto unattainable.

"On Perry Creek there have not been any new developments, notwithstanding Perry is a favorite creek. The rich pay found in shallow diggings below the falls, and on high points of rock at different places for a distance of eight miles or more up stream from the same falls, leads every practical miner to believe that there is abundance of rich mining ground on Perry Creek, lacking nothing to develop it but men and means sufficient to cope with difficulties of a not very formidable nature, when compared with others that have been successfully dealt with in opening up and working deep gold diggings in other parts of British Columbia.

"On Palmer's Bar Creek shallow diggings were worked through the season. Scarcity of water there confines operations within narrow bounds.

"It is confidently expected that Quartz Creek will be well tested next season, as the Government trail will enable miners to get there without risking the dangerous navigation of the Columbia River.

"I enclose list of prices of sundry articles here.

"I have, etc.,
(Signed)

"CORNELIUS BOOTH.

"The Honourable the Minister of Mines."

COAL.

The Returns from the Coal Fields for 1876 shew an increase, and, considering the depressed state of the San Francisco market and the fire which during the summer most unfortunately broke out in the Wellington mine, are most satisfactory.

During the year great quantities of coal were shipped to San Francisco from England or elsewhere as freight for return cargoes of wheat, and were sold below market value. This circumstance prevented the sale of Nanaimo coal and, of course, decreased the export.

Great activity in coal matters has, however, been evinced in 1876. The Baynes Sound mine has been brought into active operation, and is already bringing coal to market. The Harewood mine has also this year entered into competition with the existing mines. The coal is brought down by aerial tramway to the sea, and the price of coal from this mine being put at a lower figure than has hitherto ruled, has reduced the price of coal generally throughout the Province to \$8 75, instead of \$10 and \$11 as heretofore.

A comparative statement of the yield and sale of coal of the Vancouver, Harewood and Baynes Sound Cos. is herewith annexed. The return from the Wellington Colliery has not been received.

RETURN OF COAL RAISED AND SOLD, 1876.

	Actual output of Coal, 1876 Tons.	No. of tons sold for home con- sumption.	No. of tons sold for exporta- tion.	No. of tons on hand, Jan. 1st, 1876.	No. of tons un- sold, Jan. 1st 1877.
Vancouver Coal Co.....	73,798 15 cwt.	16,665 2 cwt.	61,871	15,246 15 cwt.	10,509 8 cwt.
Harewood Colliery.....	11,858	1,093	7,523	300	3,542
Baynes Sound Co.....	600	98	.....	.....	500
		17,856 2 cwt.	69,394		
Wellington Colliery.....	.....	87,250 2 cwt. *52,935			
Total Shipments.....	.....	140,185 2 cwt.			

* No return having been received from the Wellington mine, the above figures are taken from the Nanaimo Free Press.

COMPARATIVE STATEMENT SHOWING AMOUNT OF COAL RAISED AND SOLD
IN 1875 AND 1876 RESPECTIVELY.

	Tons.	Total Sales.
Total output of Coal, 1876.....	139,191 15 cwt.	Sold in 1876..... 140,185 2 cwt.
Do. do. 1875.....	110,145	Do. 1875..... 97,644 10 cwt.
Increase, 1876.....	29,046 15 cwt.	..... 42,540 12 cwt.

VANCOUVER COAL MINE, 1876.

Output of Coal for 12 months ending 31st Dec., 1876.	No. of tons sold for home consumption.	No. of tons sold for exportation.	No. of tons on hand 1st January, 1876.	No. of tons unsold, including coal in stock 1st Jan. '77.
73,798½ tons.	16,665 2cwt.	61,871	15,246½	10,509 8cwt.
No. of hands employed.			Wages per day.	
Whites, 304 men. 18 boys.	Chinese, 72.	Indians, 47.	Whites. \$2 to \$4.	Chinese. \$1 to \$1 25. Indians. \$1 to \$1 50.
Total hands employed, 441.			Miners' earnings per day, \$2 75 to \$5 00.	

NOTE.—The number of hands employed does not include Indians or Chinamen working for miners.

Description of seams worked, &c. (1) *Douglas Mine*, half a mile from Nanaimo Harbour, is worked by slope 600 yards from the surface, and in the lowest levels the coal is 5½ to 6 feet thick. Capacity upwards of 200 tons per day. The product of this mine is first-class for gas making purposes.

(2) *New Douglas Mine* is being opened up also by slope, about 1¼ miles from the old Douglas pit. The average thickness of the seam is fully 7 feet, very clean, and it is pronounced an excellent steam coal. Length of slope 300 yards. By a branch railway from the Douglas pit line the new coal is brought to the main shipping point in Nanaimo Harbour.

(3) *Fitzwilliam Mine*, on Newcastle Island, 800 yards by slope. At date of last report had met with a barrier in the shape of a "want," i.e., a *rock fault* which occupied the position of the coal. The "want" is now passed and we are driving into good coal over 5 feet thick, with a parting of 2 inches of bituminous shale in the middle of the seam.

(4) *Newcastle Mine*, not in operation; 240 yards by slope; on Newcastle Island.

(5) *Chase River Mine*, 290 feet deep by shaft; not in operation.

Value of plant..... Machinery, Railway, and Rolling Stock, \$118,000.

Description of Machinery, &c...

ON THE SURFACE.

- 1 Horizontal pumping and winding engine, 45 horse power.
- 1 Beam winding and pumping engine, 22 horse power.
- 1 Horizontal engine, 90 horse power, (in reserve.)
- 2 Horizontal engines, (coupled), each 10 horse power.
- 2 Locomotives, 10 and 12 horse power.
- 2 Steam winches, 8 and 10 horse power.

IN THE MINES.

- 1 7-inch double acting steam pump.
 1 5-inch do. do.
 1 4½-inch do. do.
 2 10-inch plunger pumps.
 1 8-inch do.
 1 7½-inch do.

IN RESERVE.

- 1 Patent steam pump, 20-inch steam cylinder, and 6½-inch water cylinder.

Description of Railway..... The Vancouver Coal Company use on their railway heavy double-headed steel rails, 52lbs to the yard, laid on iron chairs which are bolted to wood ties. The entire length of railway, including sidings, is a little over 2 miles. The gauge is 4 feet 8½ inches.

The Diamond Drill..... Since the date of last Report the Diamond Drill, imported by this Company, has been in successful operation. It has pierced coal in two different localities, at depths respectively of 496 feet and 412 feet, and is now being prepared for service at a third bore.

Signed) M. BATE.

HAREWOOD COAL MINE, 1876.

Actual output of coal for 1876.	No. of tons sold for home consumption	No. of tons sold for exportation.	No. of tons on hand Jan. 1st, 1876.	No. of tons on hand Dec. 31st, 1876.
11,858 tons.	1,093	7,523	300	3,542

Number of hands employed.			Wages per day.		
Whites, 47.	Chinese, 30.	Indians, Occasional.	Whites, \$2 to \$3 50.	Chinese. \$1 to \$1 25.	Indians, \$1 25.

NOTE —The actual put out of coal was in eight months. Regular work of mining and shipment only commenced in May. The numbers given above of Chinese and Indians employed are exclusive of those employed by miners.

Description of seams worked, The seam at present worked is commonly known as tunnels, &c..... the Harewood seam; it averages about 6 feet and yields a coal excellent for steam, household and gas purposes; being entirely free from sulphur, it has been found to make gas of an unusually pure quality. The mine continues to be carried on on the "level free" plan, the coal being all hauled out by mules without the aid of engines or pumping machinery. The main level is in a distance of 600 yards, and according to the present course will give a large supply of coal for many years to come without going deeper. A bore is being sunk below the present seam to prospect for the lower seam. It is

now down a distance of 280 feet without being through the shale. From the mine to the shipping point in Nanaimo Harbour, the coal is carried a distance of three miles by means of an elevated line tramway at the rate of 10 tons per hour. As business increases this will be replaced by a railway or tramway of more substantial character and greater carrying capacity. Regular mining and shipment was not commenced until the month of May, and owing to the depressed state of the coal trade, the mine has only been worked about half time.

(Signed) THOS. A. BULKLEY.

BAYNES SOUND COAL MINE, 1876.

Actual output of coal for 1876 in 2 mos.	No. of tons sold for home consumption.	No. of tons sold for exportation.	No. of tons on hand Jan. 1st, 1876.	No. of tons on hand Dec. 31st, 1876.
600 tons.	98			500
Number of hands employed.			Rates of wages per day.	
Whites, 42.	Chinese, 13.		Whites.	Chinese.
			\$2	\$1.

NOTE.—The tramway, wharf, bunkers, &c., were completed in November, 1876, and coal commenced to be taken out November 1st. The present output is 50 tons per day, and the first shipment to San Francisco will be made this month.

Name of seam worked..... The only seam being worked is known as the "Gaston seam."

Value of plant..... \$57,500.

Value of property..... \$117,500.

Description of seams, tunnels, levels, shafts, &c..... The "Gaston seam" is being worked "level free," and is 7 feet thick; 3 tunnels have been run into the seam known as 1, 2, & 3.

Description and length of tramway, plant, &c..... The tramway is a narrow gauge or 3 feet tramway, $3\frac{1}{2}$ miles in length from the coal bunkers to the wharf. The rolling stock consists of 1 8-ton locomotive, "Farleigh pattern," and 21 4-ton cars, with which 300 tons of coal can be delivered from bunkers on shipboard per day of 10 hours. The bunkers have a capacity of 1,200 tons and stand within 100 yards of the mouth of the main adit or tunnel. The coal is run out of the mine in half-ton cars and dumped into the bunkers. Additional bunkers are being constructed which, when completed, will give a total capacity of 5,000 tons.

COPPER.

A discovery of silver and copper has been made on Salmon Arm, Jarvis Inlet, which, to judge from the report hereto annexed, promises to be of considerable value to the Province. Veins of great richness have already been discovered in this vicinity.

"An important discovery of copper ore was made about two years ago on Salmon Arm, a branch of Jarvis Inlet, by Mr. Alexander Donaldson. Competent judges have declared the lode to be a true fissure vein, for the following reasons:—1st. The vein stone does not lie parallel to the cleavage of the surrounding rocks. 2nd. The blossom of quartz on the surface or hat of the lode indicates that the matter has been injected into the fissure, and not separated from the mass of adjacent formation by chemical action, as in the case of a segregated vein; also, the smoothness of the walls showing attrition by injection of quartz.

"The profile of the lode can be examined to the depth of 200 feet from the surface, as it crops out in the face of a cliff, having doubtless been laid bare by some convulsion of nature. The lead is thus clearly defined from the base of the precipice to the top, and may be still further traced along the surface of the ground for at least a mile from where it first makes its appearance. The vein is wedge-shaped, being thickest at its base, where the ore is also richest.

"A company has been organized for the purpose of working this extensive deposit, and a test tunnel has been run into the hill for about 30 feet on the vein. At the end of the tunnel the seam or vein of mineral is 3 feet 9 inches at the roof and 4 feet 2 inches at the base. Assays of the ore show that it contains 60 per cent. copper and 91 oz. of silver to the ton.

"The mine is situated about $2\frac{1}{2}$ miles from the shore of the Inlet, and the facilities for shipping the ore are excellent. The water is deep enough alongside the rocks to float a vessel of 4,000 tons.

"Experienced quartz miners from California, Nevada and Cornwall have pronounced the mine to be the richest they have ever seen, the ore being so easily got out, and wood for smelting purposes being plentiful and convenient.

"There is also good water power on the ground, sufficient to run a mill of any capacity."

IRON.

Nothing has at present been done to develop the iron on Texada Island.

A fresh discovery of valuable iron ore has been made on the North end of Texada by Captain Sturt, who is now in San Francisco endeavoring to promote its development. The ore is in the vicinity of inexhaustible limestone, and exists itself in limitless quantity.

FOURTH ANNUAL REPORT
OF THE
MINISTER OF MINES
FOR THE
YEAR ENDING 31st DECEMBER,
1877,
BEING AN ACCOUNT OF
MINING OPERATIONS FOR GOLD, COAL, ETC.,
IN THE PROVINCE OF
BRITISH COLUMBIA.





7.

Ac.		Nature of Diggings.	Rate of Wages.		VALUE OF GOLD DUST PER OZ.		Amount of Gold produced in each District, according to estimates of Gold Commis- sioners and Gov't. Agents.	
Water Recorded.	Mortgages Recorded.		Whites.	Chinese.	From	To		
DISTRICT								
Williams Creek.....								
Conklin Gulch.....								
Lowhee Creek.....								
Stout's Gulch.....								
Grouse Creek.....								
Antler Creek.....								
Stevens Creek.....								
Begg's Gulch.....		{ }	\$5	\$2 50	\$15 00	\$17 35	\$162,385	
Cunningham Creek.....								
Pile Creek.....								
McArthur's Gulch.....								
Fraser River.....								
Mosquito Creek and Lightning Creek.....	18	18						
Burns Creek.....								
Nelson Creek.....								
Perkins Gulch.....								
Last Chance Creek.....								
Anderson Creek.....								
Cottonwood River.....			5	2 50	16 50	17 80	232,017	
Chisholm Creek.....								
Davis Creek.....								
Peters, Deadwood.....								
Dragon and Canyon.....								
Keithley and others.....								
Polling Division.....	14	1	5	3 00	16 50	17 40	20,370
Dease Creek.....	8	12	6	4 00	16 00	81,300
Thibart Creek.....	8	6	4 00	16 00	173,700
McDane and adjoin.....	31	9	7	92,130
Wild Horse Creek.....								
Perry Creek.....	9	10	{ 4 to 5 3 to 3 50 }	18 00	37,000
Palmer's Bar Creek.....								
Cherry Creek.....	5	Hill and creek	3 50	15 25	5,000
Mission Creek.....	1	Do.	17 00	2,000
TRANQUILLE RIVER, FRA.....						16 00	3,500
Yale and Hope.....	8	Bar and bank.	15 00	12,000
	102	50						

★ PROV'L SEC'Y, D.C.



7.

DISTRICT	&c.		Nature of Diggings.	Rate of Wages.		VALUE OF GOLD DUST Per Oz.		Amount of Gold produced in each District, according to estimates of Gold Commissioners and Gov't. Agents.
	Water Recorded.	Mortgages Recorded.		Whites.	Chinese.	From	To	
Williams Creek.....								
Cooklin Gulch.....								
Lowhee Creek.....								
Stout's Gulch.....								
Grouse Creek.....								
Antler Creek.....								
Stevens Creek.....								
Begg's Gulch.....				\$5	\$2 50	\$15 80	\$17 35	\$162,385
Cunningham Creek.....								
Pile Creek.....								
McArthur's Gulch.....								
Fraser River.....								
Mosquito Creek.....	18	18						
Lightning Creek.....								
Burns Creek.....								
Nelson Creek.....								
Perkins Gulch.....								
Last Chance Creek.....								
Anderson Creek.....								
Cottonwood River.....				5	2 50	16 50	17 80	222,017
Chisholm Creek.....								
Davis Creek.....								
Peters, Deadwood.....								
Dragon and Canyon.....								
Keithley and others.....								
Polling Division.....	14	1		5	3 00	16 50	17 40	20,370
Dease Creek.....	8	12		6	4 00	16 00		81,300
Thibert Creek.....	8			6	4 00	16 00		173,700
McDane and adjoint.....	31	9		7				92,120
Wild Horse Creek.....								
Perry Creek.....	9	10		4 to 5	3 to 3 50	18 00		37,000
Palmer's Bar Creek.....								
Cherry Creek.....	5		Hill and creek	3 50		15 25		5,000
Mission Creek.....	1		Do.			17 00		2,000
TRANQUILLE RIVER, I.....						16 00		3,500
FRANCOIS RIVER.....								
Yale and Hope.....	8		Bar and bank.			15 00		12,000
	102	50						

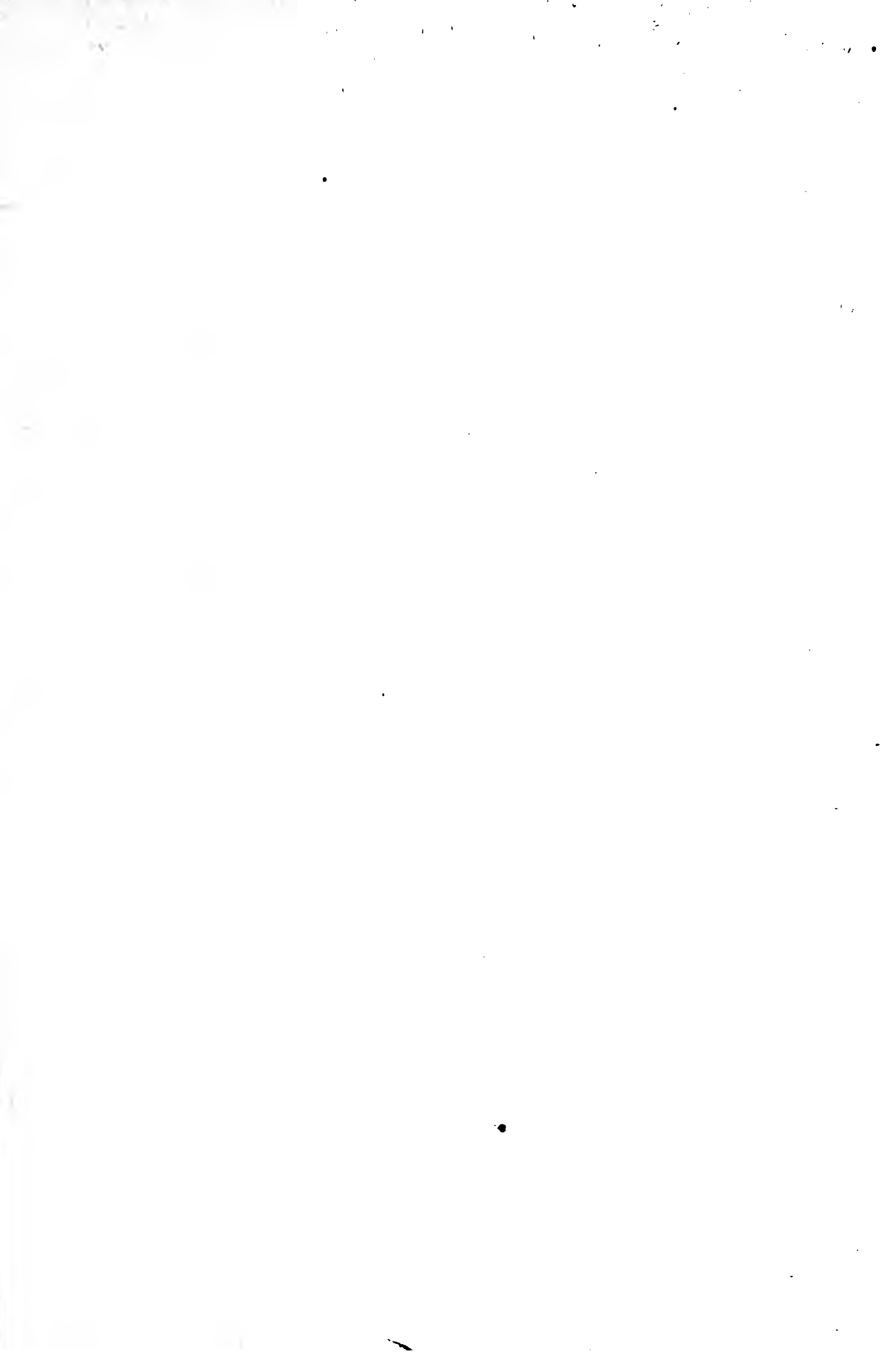
★ PROV'L SEC'Y, D.C.

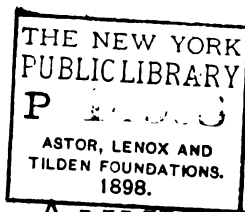
PROVINCE OF BRITISH COLUMBIA.

TABLE

Shewing the actually known and estimated yield of Gold; the number of Miners employed; and their average earnings per man, per year, from 1858 to 1877.

Year.	Amount actually known to have been exported by Banks, &c.	Add one-third more, estimate of gold carried away in private hands.	Total.	Number of Miners employed.	Average yearly earnings per man.
1858 (6 months). }	\$ 390,265	\$ 130,088	\$ 520,353	3,000	\$ 173
1859	1,211,304	403,768	1,615,072	4,000	403
1860	1,671,410	557,133	2,228,543	4,400	506
1861	1,999,589	666,529	2,666,118	4,200	634
1862	} 3,184,700	1,061,566	4,246,266	{ 4,100	517
1863				{ 4,400	482
1864	2,801,888	933,962	3,735,850	4,400	849
1865	2,618,404	872,801	3,491,205	4,294	813
1866	1,996,580	665,526	2,662,106	2,982	893
1867	1,860,651	620,217	2,480,863	3,044	814
1868	1,779,729	593,243	2,372,972	2,390	992
1869	1,331,234	443,744	1,774,978	2,369	749
1870	1,002,717	334,239	1,336,956	2,348	569
1871	1,349,580	449,860	1,799,440	2,450	734
1872	1,208,229	402,743	1,610,972	2,400	671
1873	979,312	326,437	1,305,749	2,300	567
1874	1,383,464	461,154	1,844,618	2,868	643
1875	1,856,178	618,726	2,474,904	2,024	1,222
1876	1,339,986	446,662	1,786,648	2,282	783
1877	1,206,136	402,045	1,608,182	1,960	820
			55,961,800	62,211	





FOURTH ANNUAL REPORT
OF THE
MINISTER OF MINES
FOR THE
YEAR ENDING 31st DECEMBER,
1877,
BEING AN ACCOUNT OF
MINING OPERATIONS FOR GOLD, COAL, ETC.,
IN THE PROVINCE OF
BRITISH COLUMBIA.



VICTORIA : Printed by RICHARD WOLFENDEN, Government Printer,
at the Government Printing Office, James' Bay.

1878,

REPORT

OF THE

MINISTER OF MINES

FOR THE YEAR 1877.

To His Excellency A. N. RICHARDS, Lieutenant-Governor of the Province of British Columbia.

MAY IT PLEASE YOUR EXCELLENCY:—

I have the honour herewith to present to Your Excellency the Fourth Report of the Mining industries of the Province.

All of which is respectfully submitted.

I have the honour to be,

Your Excellency's obedient Servant,

A. C. ELLIOTT,

Provincial Secretary & Minister of Mines.

1st February, 1878.

REPORT.

GOLD MINING.

The amounts actually exported by the Banks during the year 1877 are as follow:—

Bank of British Columbia	\$353,254 16
Bank of British North America	497,748 65
Garesche, Green & Co.....	355,133 48

1,206,136 29

Adding one-third for gold exported in private hands 402,045 43

Gives a total yield of\$1,608,182 72

Even the most careful and painstaking officer cannot estimate the gold taken out with even an approximation to correctness.

The total yield for 1876 was estimated by the Gold Commissioners and Government Agents at \$980,671; but the Banks alone exported more than \$350,000 over that amount, and a large sum must be added for gold exported otherwise than through the Banks. One-third is the estimate of the gold so leaving the Province; but, at any rate, the returns from the Banks are absolutely correct, and afford solid ground for estimating the total yield,

CARIBOO.

For the second time in the history of British Columbia, the old mining district of Cariboo stands pre-eminently forward. Ever since 1863 companies have from time to time been formed, and large sums expended, in the endeavour to find gold quartz in paying quantities. Unfortunately, the necessary technical knowledge was wanting, and failure the result.

In May last, the Provincial Government—in addition to having offered a bonus, under certain conditions, to the company which should first erect a ten-stamp quartz mill in Cariboo—wrote to Mr. Booker, Her Majesty's Consul at San Francisco, asking him if he would kindly employ, on its behalf, the services of "some person skilled in quartz." The Province was indeed fortunate in Mr. Booker's selection, for Mr. Harper's great knowledge and experience in lodes and ores are undoubted, and have been of the greatest possible use in the, so far, successful developments which have been made during the past season. A year ago the miners of Cariboo, after long and patient struggling, had nearly given up all hope; to-day everybody is looking forward to an era of prosperity which, in the opinion of the well-informed, will even exceed that of the palmy days of 1862-3-4-5. Confidence and activity have been substituted for despondency and apathy, and even at this season of the year, with many feet of snow on the mountains, men are out in all directions prospecting for ledges.

The yield of gold from the alluvial claims in Cariboo has doubtless fallen off; it is probable, however, that such has not been the case to the extent estimated by the Government Agent.

It is greatly to be regretted that the Victoria Company, on Cunningham Creek, have been obliged to abandon their ground.

The reports received from the Government Mining Engineer, and the Government Agent at Cariboo, will no doubt be read with interest.

"BARKERVILLE, July 21st, 1877.

"*The Hon. the Minister of Mines.*

"SIR,—Since my arrival in Cariboo I have examined two well defined ledges in the vicinity of Barkerville, and veins at the head of Burns Creek, from which a specimen of ore, rich in gold, had been taken, which, upon examination, I found to be a detached spur from a ledge situated at a higher level, and therefore of little or no value.

"I have confined my attention to ledges in the immediate vicinity of Barkerville, owing to their accessibility, which is an important consideration in the transportation of heavy machinery and the favourable conditions under which rock can be extracted and sent to the mill.

"On my return from San Francisco, I shall examine and report upon the lodes situated at a greater distance which I may deem of sufficient importance to bring under your notice.

"The Big Bonanza ledge, situated on the summit of the mountain at the back of Barkerville, is a true fissure vein, having well defined walls running nearly east and west, with a pitch to the north at an angle of about twenty degrees. The ledge is twelve feet in width, containing milling ore, about four feet of which can be assorted for milling purposes, judging by the favourable surface indications obtained in the cut run across its width, which would probably increase in value at a greater depth. Some of the quartz was sent to Mr. Hitchcock, the Government Assayer, and a result obtained was gold, 1 oz. 6 dwt. 3 gr.; silver, 3 oz. 2 dwt. 1 gr.

"I next examined the Steadman ledge at Richfield, upon which a shaft has been sunk by the Cariboo Quartz Mining Company to a depth of fifty feet. Owing to a miscalculation of the contractor in sinking where it cropped out on the surface, without taking into consideration the dip of the vein, only the footwall was visible. The ledge is well developed and contains rock which will defray the expenses of milling, and will more fully exhibit the characteristics of a gold-bearing ledge at a lower level. I regret, for the reason above stated, that I was unable to form an opinion concerning the hanging

wall, which my experience leads me to believe contains vein matter of a richer character. The assays obtained from the ledge exhibited 13 dwt. 1 gr. gold, and 3 oz. 15 dwt. and 3 gr. silver, to the ton. I have inspected the four stamp mill at Richfield and found it deficient in two of the most important requisites for the saving of gold which contains enough silver to prevent its being arrested by quicksilver, viz:—an amalgamating pan and settler; owing to the absence of which, and the want of sufficient experience, no appreciable amount of the precious metal contained in the ore could be obtained.

"I have had several interviews with the Directors of the Cariboo Quartz Mining Company, and have given them what information lay in my power for the successful development of this important source of wealth. These gentlemen coincided with my views, and arrangements have been made for me to purchase the required apparatus for the present mill, in San Francisco, and also to engage the services of a thoroughly competent amalgamator, assayer, and panman, without whose skill and experience the best of machinery would be of no avail, for which purpose it is my intention to leave here by the next steamer in order to effect a return at as early a date as possible.

"I considered it necessary that the small mill be first put in working order, as the proper opening of a mine for the economical extraction of ore to keep a ten stamp mill going will necessitate considerable delay and expense. The latter will require about seven hundred tons of rock a month; only three hundred tons of which will be considered of sufficient value for milling. In the meantime, the small one can be kept at work developing the lode and testing its value, which I am confident will attract the attention of capitalists and enable the present company to raise the extra amount required, in addition to the Government loan, for the erection of more extensive machinery, thereby paving the way to remunerative employment, stimulating every branch of business, and launching the Cariboo district on a new tide of prosperity, which will increase with the lapse of time.

"I have, etc.,
(Signed)

"R. B. HARPER."

"BARKERVILLE, October 13th, 1877.

"The Hon. the Minister of Mines.

"SIR,—I have the honour to report that the Cariboo Quartz Mining Co's. tunnel, for the purpose of intersecting the Big Bonanza ledge at a lower level, is in a distance of 116 feet, leaving 50 feet more to be accomplished. The rock run through is a black slate, and exhibits small seams of quartz pitching in the direction of the lode. The rock in the face, at present, is so very hard as to greatly retard the progress hitherto made, and its completion will probably not occur before the end of this month.

"The St. Lawrence Co., situated at the eastern extremity of the Big Bonanza, have run a cut across the vein. This portion of the lode has well defined vertical walls, the vein matter, containing a small percentage of iron pyrites, lead, and blende, assays from \$6 to \$35 per ton.

"The American Mine, belonging to the same company, has had a cut run across the seam, which exposed rock of the same quality as that contained in the St. Lawrence.

"The Pinkerton Mine adjoins the American. The ledge in this locality crosses Lowhee Creek in the Victoria Co's. ground, at a depth of 150 feet from the surface, and I availed myself of the permission, obtained from the latter company, to descend into their diggings and inspect the remarkable body of ore upon which the foregoing and subsequent claims are located. The ground, which formerly covered it, having been removed by drifting, I had no difficulty in forming an opinion so favourable, with regard to its permanent and remunerative character as a gold-bearing ledge, that not a doubt remains in my mind as to the great influence its development will eventually have in the welfare of the district and the Province in general.

"Assays, from quartz taken at this depth, average \$36 in gold to the ton, with a small proportion of silver. The ledge is about 23 feet wide, and the deposit seems almost inexhaustible.

"The next location, owned by Mr. T. Harper, has been amalgamated with the preceding mine, and ore is now being hoisted in the Victoria Co's. shaft, from which a good return is anticipated.

"The Enterprise Mine, to the west of the above-mentioned, is owned by some of the most prominent citizens of Barkerville, and is, I consider, one of the best locations on the Big Bonanza, possessing as it does all the most favourable features of the preceding claims, and enjoying the additional advantage of being well situated for an economical extraction of the mineral it contains, without resorting to the expensive machinery for hoisting and pumping purposes.

"The Steadman lode, at Richfield, improves in appearance as work progresses. The vein matter carries a large quantity of iron, blende, and lead. Assays therefrom vary from \$16 to \$20 per ton. A better knowledge as to its average value will, however, be ascertained in about a month, as the mill is now engaged in crushing some of the rock.

"The Foster Mine, Chisholm Creek (which empties into Lightning Creek at the town of Stanley), has, so far, given the best assay returns, ranging from \$120 to over \$700 per ton. The vein, on the surface, is divided into three stringers, running parallel to each other, which will be found to unite at a lower depth and present a compact body of ore. A shaft has been sunk to a depth of 18 feet, with such promising indications that measures will be taken, in the ensuing spring, with a view to its thorough exploration.

"There has been considerable work done on the Montgomery extension, situated on the same ledge, in running cuts through the gravel to intersect the vein, which has not yet been found. It is my conviction that a more careful search will reveal its presence, concealed from view, under slide bed-rock.

"The Foster extension, located south of the last mentioned, met with a similar difficulty in finding the reef, which was covered with an alluvial deposit of considerable depth, but lately their exertions have proved successful, and work thereon will be energetically prosecuted next year.

"The test mill at Richfield, with a crushing capacity of about four tons per day, started to crush on Monday, 8th instant, since which time it has been running in a most satisfactory manner, for which great credit is due to Messrs. Nason and St. Lawrence whose exertions have so much contributed to its present efficient condition.

"In conclusion, I beg to return my sincere thanks to the Directors of the Cariboo Quartz Mining Company and other gentlemen for the assistance and information which have been so cheerfully accorded me on all occasions.

"Feeling that my humble endeavours to assist in developing the rich resources of the Cariboo District will be amply rewarded by the success which will certainly ensue,

"I have, etc.,

(Signed)

"R. B. HARPER."

"VICTORIA, B. C., 18th December, 1877.

"SIR,—Being on the eve of leaving the Province for some months, I deem it advisable to supplement my reports of last summer by a short summing up of the season's work in Cariboo with reference to the development of quartz:

"The Cariboo Quartz Mining Company have crushed forty-one tons of ore taken from the Steadman ledge with an average result of \$18 to the ton. This ore was taken from a cut in the creek, having a vertical depth of 18 feet, and the appearance of the rock in the bottom of the cut is richer than that where it was commenced.

"The same company's tunnel on the Bonanza ledge has been run in for the distance of 160 feet; at the distance of 138 feet the lode was intersected and run through; its width at this point being 22 feet and its depth from the surface 52 feet. The assays from this rock averaged \$33 per ton. I may add that 8 assays were made and the average result taken from all. On the surface, this rock only averages \$14 to the ton, the inference being that the ore increases in richness at the lower level. 3,000 feet beyond, I visited the Victoria shaft and found the same lode at a vertical depth of 350 feet below the surface where the rock was taken which averaged \$14 to the ton. At this point, the assays ranged from \$24 to \$36 per ton, and the ledge at this depth has a width of 30 feet.

"Work has been done on the Foster ledge, Chisholm Creek; a shaft has been sunk to the depth of thirty-three feet, and the indications are so favourable that the company are preparing to run a tunnel.

"Many other companies are prospecting for quartz in Cariboo, but I am not in a position to report on them.

"I may state, in conclusion, that I have formed a favourable opinion of the Steadman and Bonanza ledges—the only two which, so far, have been really tested.

"I have, &c.,

(Signed)

"R. B. HARPER.

"The Hon. A. C. Elliott, Minister of Mines."

"To the Honourable A. C. Elliott,
"Minister of Mines.

"RICHFIELD,

"October 19th, 1877.

"SIR,—I have the honour to enclose herewith, forms containing mining statistics, embracing operations in this district (exclusive of Keithley Creek Polling Division) for the first nine months of the present year.

"It will be observed that a material decrease in the gross yield of gold of the district, as compared with the same period in last year, has taken place.

"Considerable prospecting has been going on during the summer on various creeks and gulches, but no discoveries of moment have been made.

"I regret to say the Victoria Co., of Cunningham Creek, whose exertions have been watched with much interest the past year, have, after expending some \$35,000, taken their pumps out of the shaft and abandoned the ground, having thoroughly tested the channel, but without finding ground to pay.

"Two companies on Cañon Creek are still prospecting, with every hope of success:

"On Jack of Club's Creek, a company (the Sincock Co.) formed for the purpose of prospecting for a hill channel, have sunk two shafts 50 feet deep, as yet without succeeding in their object.

"The early resumption of work by the Lane & Kurtz Company is a matter for congratulation. The benefit to the district to be derived from the successful prosecution of this undertaking can hardly be over-estimated, many of our most experienced miners being of opinion that the work, if properly carried on, will prove highly remunerative to the company.

"The yield of gold from most of the old, well-known creeks, excepting Lightning, will be found to be about equal to that of last year.

"The yield of gold for nine months, as per statistics, is found to be \$391,402

"Estimated amount taken out by various companies that have not reported to the collectors 20,000

"Of the above amount the Bank of British North America, Stanley, purchased \$186,177

"The Bank of British Columbia, Barkerville 156,100

"Leaving amount in private hands 69,125

\$411,402 \$411,402

"Quartz.

"I am much pleased to report upon the progress made in developing this most important branch of mining industry. I have referred to the number and extent of our quartz veins in my former reports, but no definite knowledge of their remunerative value existed until the advent to Cariboo of the Government Mining Engineer, Mr. R. B. Harper, in July last; and as that gentleman's report has been made to you, I need but to say that the utmost confidence is reposed in Mr. Harper by the whole community, and that but one opinion prevails, viz., that an era of prosperity is about to dawn on Cariboo, surpassing the palmy days of 1863.

"Thirty-six quartz mining claims of 1,500 feet each, in all 54,000 feet, have been made since Mr. Harper's arrival, upon some of which work is being prosecuted with vigour. I may mention particularly two companies, the Cariboo Quartz Mining Company and the Enterprise Company. The former have two locations, the Steadman, a real estate claim, and a pre-emption on the Bonanza lode. The company is now running a tunnel on the Steadman vein, whence the rock, after being sorted, is hauled on a tramway to the mill and crushed. It is from this lode that the first test is being made, probably 40 or 50 tons. When the result is ascertained, a test will then be made from the Bonanza location, a tunnel being run through bed-rock to cross-out this ledge,

It is expected that by the time the test is made from the Steadman, this tunnel will have opened up the vein at about 50 feet deep.

"The Enterprise Company, situated on the west side of Lowhee Creek, on what is supposed to be an extension of the Bonanza ledge, is about to let a contract for about 200 feet of bed-rock tunnel to cross-cut the ledge at about 200 feet deep. This claim is very favourably located for prospecting; the face of the mountain being precipitous, will admit of comparatively short tunnels cutting the ledge at very great depth.

"The four-stamp test quartz mill is now running night and day, and appears to do good work. No wash-up has yet been made.

"Believing that quartz mining in this district is destined to take precedence in the future, I have endeavoured to ascertain the approximate cost of working the ledges, and find, upon the best information obtainable, that mining and milling the ore with a ten-stamp mill will cost from \$10 to \$12 per ton, which will vary according to circumstances; but in so far as our present experience can guide us, ores can be reduced without the use of expensive processes.

"I have, etc.,
(Signed)

"JOHN BOWRON,
"Government Agent."

"RICHFIELD, December 22nd, 1877.

"SIR,—I have the honour to inform you that since my last report the active working of quartz mining renders a supplementary report necessary.

"The crushing from the Steadman claim of the Cariboo Company has been completed, resulting in a gold bar of the value of \$341 81, obtained from forty tons of rock. This may be considered a highly satisfactory result, the whole of the rock crushed being from a cut on the surface from six to ten feet deep. The pulp assayed \$15, but the quicksilver was not retorted, the company having only a small retort.

"The same company have run a tunnel cutting the Big Bonanza lode at a depth of about 50 feet. The assays in crossing the ledge vary from \$10 to \$92. Five assays recently made from different parts of the ledge give an average of \$33 70. The drift is being extended in a S.E. direction, running on the lode toward the huge mass of quartz shewing on the surface, from which the ledge takes its name. The ledge where the tunnel crosses it is 20 feet wide.

"The result of such a favourable test from the Steadman, and the assays made on the Bonanza, have created quite an excitement throughout the district. The Bonanza, or what is believed to be an extension of it, having been staked to the head of Red Gulch, a number of companies are now actively engaged upon it.

"The Enterprise Co., referred to in my last report, have run their tunnel in bed-rock about 100 feet. They will cut the ledge about 150 feet deep.

"On the old Wilkinson ledge the British Columbia Gold and Silver Milling and Mining Company have a location on which they are working. Extending east from this company's ground is the Perseverance Co., in whose claim, from a stratum of decayed quartz four feet wide, dipping toward the main lode, an assay has been made of \$155 to the ton. The further locations extend to where the ledge crosses Grouse Creek. This lode is now believed to be the Steadman, and the impression among many is that the Steadman and Bonanza lodes are the same, forming one monster fissure, believed to reach from Grouse Creek to the head of Red Gulch, and, singularly enough, all the streams that cross it have been rich in alluvial deposits.

"The general bearing of this ledge would appear to be from due east and west to 18° north of west, with a northerly dip.

"From the Cariboo Co. location on the Steadman to the same company's claim on the Bonanza, several companies are actively at work. The result of the working in the Tahoe, the Vivian, and the Cooper Companies will prove or disprove this theory.

"Some work has been done, but I have no further developments to report, on Chisholm and Davis Creek lodes.

"On the Hood's lode, which crosses William Creek about half a mile above Richfield, and runs parallel to the Steadman, several companies have located claims.

"In all there have been 82 quartz claims recorded in the months of November and December.

"In consequence of the attention it has attracted, and its undoubted value, I deemed it advisable to employ Mr. O. Travailot to make a tracing of the Bonanza lode as far as surveyed, which I forward by this mail.

"I have, etc.,
(Signed)

"JOHN BOWRON,
"Government Agent.

"To the Hon. the Minister of Mines,
"Victoria, B. C."

The Government Agent at the Forks of Quesnelle, acting for the Keithley Creek section of the Cariboo District, has naturally but little to report upon which could be considered of much interest to the general public. It is satisfactory, however, to observe that Keithley Creek—discovered in 1861—still continues to yield gold in paying quantities. The great bulk of the mining population in this section is composed of Chinese, from whom it is impossible to obtain returns even approximately accurate.

"FORKS QUESNELLE, B. C.,
"October 10th, 1877.

"SIR,—I have the honour to forward herewith my report of the mining statistics of Keithley Division, Cariboo District, compiled from information gathered on my annual visit to the claims, and in most cases obtained from the actual owners. I consider it a fair estimate of the yield of gold.

"The white miners in all cases give the necessary information, but the Chinese (with whom I have most to do) are untruthful, and suspicious that by asking such questions I have a further design on their pockets; however, those among them who have been in the country for some years, know what is wanted, and give tolerably correct information.

"I am sorry to have to report that the outlying creeks have not improved any since last year. On my visit to Harvey Creek, I found two companies at work; they were not taking out any gold just then, but their prospects are good for the winter season. Keithley Creek seems to hold out well, and is the chief place of mining and business in that section, and the miners on all the creeks in that part of the district depend on the Keithley Creek traders for their supplies. In the statistics forwarded, I have only been able to give the yield of gold for the summer season; of the winter's mining on the rivers I am able to speak only from report, but think there might be \$7,000 or \$8,000 added to statistics for winter's work.

"I have, etc.,
(Signed) "W. STEPHENSON,
"Government Agent.

"To the Honorable
the Minister of Mines."

CASSIAR.

The gold yield of this mining district slightly declined during the past year, but the season was a most unfavourable one for mining, and the report of the Gold Commissioner may on the whole be considered encouraging.

McDame Creek has not sustained the high opinion formerly held of it by miners. Its 1st North Fork, however, is apparently rich, the pay-dirt in one tunnel having yielded 136 oz. to five sets of timbers, and prospects found in other tunnels are equally indicative of rich ground.

The discovery, by Mr. Walker, of a new creek on a different range is most important; it will, in all probability, open up a new mining district. The prospect obtained—60 oz. for 48 days' work—is really a good one, and it would appear that paying ground extends for at least $2\frac{1}{2}$ miles. The gold being obtained in a "different range from that in which previous discoveries have been made," is a fact of much significance to the practical miner.

It is hoped, and expected with confidence, that the approaching mining season will be a more prosperous one than the last. Two reports from the Gold Commissioner are published herewith.

"LAKETON, CASSIAR, October 1st, 1877.

"SIR,—I have the honour to enclose herewith the Mining Statistics for 1877; and, also, to furnish the following particulars in reference to the general progress, &c., of the District of Cassiar during the present year.

"Although the mild winter of 1876-77 and the following spring promised a more favourable season than usual, I regret that such it has not proved to be.

"A succession of freshets throughout the season rendered the creeks unworkable until within the last six weeks, and a similar recurrence of mud slides considerably retarded mining operations in the hills and benches; and in some instances, as regards the latter, so much damage has been done that the labour of the season has failed to put them in good working order.

"Dease Creek suffered most from the incessant rains, and the returns from that creek are in consequence far below what they otherwise would have been. The majority of claims in that creek have been transferred to the Chinese, and consequently much loss is entailed upon the hill claim-holders, who, although the creek has once been worked out by the whites, are still unable to open their ground.

"Thibert Creek has done comparatively well; the hills prospect very favourably, and I have no doubt that, should next season prove favourable to mining operations, its returns for 1878 will fully double those of the present year.

"McDame Creek has confirmed my previous reports, inasmuch as it is to a degree 'spotted,' and nothing like a 'lead' has as yet been found.

"Snow Creek has not realized the expectations of last autumn, a few claims only having yielded richly.

"The 1st North Fork (McDame Creek) has turned out very satisfactorily. The last 'wash-up' from the Dawson & Phillips tunnel (5 sets) yielded 136 ounces, or about \$154 a day to the hand. The tunnels that have struck bed-rock above them on that creek have obtained prospects equally encouraging.

"Nothing definite is as yet known as regards the 3rd North fork (McDame Creek). Prospecting by tunnel is still carried on with favourable anticipations as to the result.

"The late discovery, Walker's Creek, is worthy of notice as prospecting well, offering remunerative employment to, it is estimated, at least a couple of hundred miners, and tending to open up an entirely new section of this district. It is situated in a different range from that in which the previous discoveries have been made, and there is every hope that it will prove the nucleus of gold fields as valuable and extensive as any Cassiar has heretofore produced.

"Several applications under the "Mineral Ordinance, 1877," have been received, and, owing to the energy and enterprise of J. W. McKay, Esq., an arastra has been erected near Glenora, for the purpose of testing some rock taken from lodes in that vicinity. Mr. McKay has been untiring in his endeavours to develop that branch of mining in this district, but, owing to the great expense attending such an undertaking and to the little interest bestowed upon it by others, the practical results arrived at are of little consequence, further than to prove that this is a country rich in quartz, possessing every indication of valuable mineral deposits.

"Attempts have been made this year to grow grain and vegetables in the district; I am happy to say that very favourable results were arrived at, and that for the future many thousands of dollars, which hitherto went to a foreign market for the purchase of such necessities, will henceforth be expended in our own country and district.

"Seven pre-emptions under the "Land Act, 1875," have been recorded.

"Packing across the portage from Telegraph Creek to the head of Dease Lake, owing to the excellence of our trails, &c., has been done this year at the rate of seven cents per pound instead of from ten to fifteen cents, as paid during last season.

"The mines have been well supplied with provisions during the past year, and a tendency, though slight, has been exhibited towards a reduction in the price of merchandise generally. The prices still demanded are, however, high, and I fear that there is no immediate likelihood of there being any material reduction.

"The number of men here this season, exclusive of Indians, did not at any time exceed 1,200, of these between 300 and 400 were Chinese.

"Owing to the unprofitable excitements of the spring, I regret to be obliged to report that many of the miners were little better than destitute, and had not, in many cases, the means of paying their way out of the country. There have, however, been

fewer cases of sickness during the year, and the number of deaths has been 5 as against 11 in 1876.

"It is very gratifying to me to be able to state that there have been no criminal cases, and with the exception of one robbery, supposed to have been committed by Chinamen, no crime has been committed in the district.

"The returns, as near as can be estimated from the closest enquiries, are as follow from the different creeks, viz.:—

Dease Creek,	\$ 81,300 00
Thibert Creek,	\$173,700 00
McDame Creek,	\$144,800 00

Amount taken out, of which no definite returns could be procured say \$45,000, which, with the sum of \$55,000 allowed for the probable yield from the date upon which the statistics were completed until the 31st December next, will bring the gross amount to \$499,830 00.

"Considering the many difficulties which have beset the miners, and the fact that there have not been as many engaged this year, I think that, on the whole, the results for 1877 are not unfavourable, but rather go to prove that Cassiar stands to-day a mining district second to none in the Province as regards the number of men it employs, its great extent, its prospects, and the fact that it is as yet, except as regards a very limited portion of it, undeveloped.

"A severe winter is anticipated.

"I beg to enclose herewith notice of the laying over of the claims in the Cassiar District, also a list of the prices current.

"I have, etc.,

(Signed)

"ARTHUR W. VOWELL,

"To the Honourable

the Provincial Secretary, Victoria."

"Gold Commissioner and Stipendiary Magistrate.

"LAKETON, CASSIAR, September, 24th, 1877.

"SIR,—I have the honour to report, for the information of the Government, that I visited McDame Creek on the 12th instant. That creek upon my arrival presented quite a different aspect from what it did upon the occasion of my last visit. Instead of finding the prospects bright, and the miners in that portion of my district prosperous, I regret to be obliged to state that, with the exception of the 3rd North Fork, everything seemed to indicate a state of things quite the reverse. Many of the claims which had been paying and prospecting well in the earlier portion of the season had apparently failed, and, owing to the distracting effects of the discoveries already reported upon in the immediate vicinity, portions of that creek which, by steady work would have proved remunerative, were neglected, and in many instances totally abandoned.

"The 3rd North Fork is turning out well; as the tunnels are driven in prospects are found as good as those already obtained, and it is estimated that it will prove comparatively rich all through, and thus afford employment during the coming winter to many.

"Before my return (19th instant), I am happy in being able to report upon the return of a Mr. Walker and others from what has proved a successful prospecting tour. The discovery of Walker Creek, as the new creek has been named, will be of vast service to the district by opening up a section of country hitherto practically unknown, and which from present reliable reports promises to afford diggings of a regular and lasting character.

"The new creek is situated some 70 or 80 miles due east from Sylvester's Landing, at the mouth of McDame Creek, on Dease River. The discoveries of last spring were to the north-west.

"The prospect obtained has been a very fair one; for an aggregate of 48 days' work some 60 ounces of gold dust were taken out, realizing from \$18 to \$21 a day to the hand. The gold is fine, of a granulated appearance, and heavy quality—the largest piece obtained weighing not more than fifty cents. I have seen some 40 ounces of it, and am of the opinion that it is a class of gold which promises a continuous and uniform deposit in the creek from which it was taken. Mr. Walker and party found that the creek prospected for about two and a half miles about the same as the ground they had

worked. They also report a cañon of about one and a half miles in length, composed entirely of decayed quartz, and full of iron pyrites. The creek is about six miles long, and the average width is 200 feet, depth to bed rock (slate) 7 to 12 feet, no benches,—with sloping banks similar to Williams Creek, Cariboo. The country intervening between Sylvester's Landing and new creek is of a nature not difficult to travel over. Several of the miners, together with Mr. Sylvester, who has a pack train ready for the new gold fields, intended, when I left (19th instant), cutting out a trail this autumn and endeavouring to get in a load of freight before the winter sets in.

"The country surrounding the new creek is reported to be quite different in its appearance from that in vicinity of McDame, Thibert, or Dease Creeks, being more open, possessing a more luxuriant vegetation, and abounding in good grasses, game, and fish. Nearly all the men have gone eastwards from McDame Creek, and several from Thibert and Dease have also—although in danger of being frozen in—started for the new country.

"I should have visited that portion of my district had the season not been so far advanced, and had there not been so many calls upon my presence elsewhere. However, as winter is setting in, all that was necessary for the requirements of the public has been met by having an officer there until the commencement of the close season, who can make records and attend generally to their wants. Immediately upon the intelligence of the strike reaching me, and as soon as he was relieved from other duties, I sent Mr. Wiggins, who has been engaged upon McDame Creek as acting constable for some time past, and who has proved a very efficient officer, to look after the new creek and report, etc.

"Trusting that my action in this matter may be approved,

(Signed

"I have, etc.,

"A. W. VOWELL,

"Gold Commissioner.

"To the Honourable
the Provincial Secretary, Victoria."

"PRICE LIST OF PROVISIONS FOR OCTOBER, 1877.

	DEASE CREEK.	McDAME CREEK.
Flour, per 100 lb. sack.....	\$20 00	\$30 00
Bacon, per lb.....	0 45	0 50
Ham, ".....	0 50	0 55
Beans, ".....	0 25	0 35
Sugar, ".....	0 45	0 55
Tea, ".....	1 25	1 25
Coffee, " roast.....	1 00	1 25
Do, " green.....	0 65	
Rice, ".....	0 25	0 35
Oatmeal, ".....	0 30	0 40
Dried fruit, apples, per lb.....	0 50	0 65
Canned fruit, per can.....	1 00	1 25
Onions, green, per lb.....	0 45	0 50
Do, dried, ".....	1 00	1 20
Potatoes, fresh, ".....	0 22	0 30
Do, per can.....	1 00	1 25
Do, " sweet.....	1 00	1 25
Peaches, dried, per lb.....	0 50	0 60
Brandy, per gallon.....	8 00	10 00
Whiskey, ".....	7 50	10 00
Boots, leather, per pair.....	7 00 @ 12 00	10 00 @ 12 00
* Do. gum, ".....	10 00	11 00
Nails, per lb.....	0 40	0 45
Shovels, each.....	3 50	4 00
Picks, ".....	7 00	9 00
Axes, ".....	4 50	4 00 @ 5 00
Steel, per lb.....	0 55	0 75
Iron, ".....	0 50	0 55
Tobacco, per lb.....	2 00	2 25
Soap, English, per bar.....	2 00	2 00
Cheese, per lb.....	0 75	0 80
Butter, ".....	1 25	1 25
† Beef, ".....	0 30	0 35 @ 0 40

* None in market.

† Very little in market.

KOOTENAY.

It is greatly to be regretted that the reports received from the Gold Commissioner of this district are of so unfavourable a nature. The efforts made by the miners to discover new diggings have, unfortunately, not hitherto been crowned with success. It is to be hoped, however, that the labours of the coming season will receive a better reward.

" KOOTENAY, 29th September, 1877.

" SIR,—I have the honour to enclose herewith tabulated statement for Minister of Mines.

"The material for any further report for the information of the Lieutenant-Governor is very scarce indeed.

"The company of three men that were prospecting on Perry Creek failed to test the deep ground in consequence of a serious break down in their machinery. The value of the deep ground on Perry Creek is to-day as great a mystery as ever, and must remain so for this season at least.

"A company of three men will prospect on Quartz Creek this season. Nothing heard from them yet.

"Another company of three men are prospecting on some tributaries of Kicking-horse River. One of the party has been there before, and found good prospects. They were all very sanguine when leaving here, and the majority of our miners think they will strike diggings.

"The Government road party that are operating on the trail through the Rocky Mountains to Fort McLeod, east of us, will also pass through a country where gold has been found, but I fear the lateness of the season, after completing the public works, will not leave any time for them to examine the country for gold on their own account.

"I will take the earliest opportunity of reporting from all those outlying parties after their arrival here.

"I have, etc.,

(Signed)

" CORNELIUS BOOTH.

" Gold Commissioner.

" To the Honourable
the Provincial Secretary, Victoria."

" KOOTENAY, 22nd November, 1877.

" SIR,—I have at present very little information for the Lieutenant-Governor, wherewith to supplement the mining report which I have had the honour to forward heretofore.

"Every effort made to develop new gold diggings in this district, during the past mining season, has proved an utter failure.

"In the majority of cases lack of judgment and want of means has been the cause.

"There are at present in Kootenay miles of streams on which gold has been found, but in no case during the last five years has any attempt to prospect any of them been carried out far enough to demonstrate satisfactorily whether gold in paying quantities was deposited in or near any of them.

"The population is sparse, their means are small, supplies are expensive, and credit limited, hence Kootenay is doubtless doomed to drag out a precarious existence until some lucky accident develops a portion of her hidden wealth.

"I have, etc.,

(Signed)

" CORNELIUS BOOTH,

" Gold Commissioner.

" To the Honourable
the Minister of Mines, Victoria."

OKANAGAN.

The estimated yield from this section of the Province is the same as last year. Prospecting on Cherry Creek does not appear to have been attended with much success, but Mr. Duteau, late in the season, obtained a satisfactory prospect in the hill, and the discovery may lead to important results. Prospects have also been obtained on a small tributary of this creek, but no sufficient test has yet been made to justify any opinion concerning it.

The finding of gold on the head waters of the Kettle River is probably the most important discovery yet made in this district. It must be remembered, however, that but little prospecting has yet been done. Mr. Dawson, of the Dominion Geological Survey—whose opinion is valuable—examined the Cherry Creek section last summer, and considered it to be rich both in gold and silver.

It is scarcely necessary to dilate on the very great advantages which would accrue to the Province from the discovery of even a fairly paying mining camp in this, one of the most important farming and stock-raising districts of British Columbia—the miners would have cheap food, and the farmers a ready market.

Attention is directed to the Assistant Gold Commissioner's most interesting report.

“OKANAGAN,
“December, 1st, 1877.

“*To the Honourable A. C. Elliott,*
“*Minister of Mines.*

“SIR,—I have the honour to report, with regard to the mines in my district, as follows:—Prospecting has been carried on through the summer along the main Cherry Creek and its branches for a distance of several miles, and although some very coarse specimens of gold have been found at intervals, no bona fide lead of pay dirt has been discovered above the Christian and Schneider Claims.

“This company, whose claims are located on the hills some 50 feet above the creek, have done well this fall, and during the latter end of November were averaging an ounce a day to the hand. Pieces of gold weighing respectively 8½ ounces, 6 ounces, and 2½ ounces were taken out of this claim last month, and afterwards exhibited in Victoria, and this company are feeling sanguine of being able to make good wages for some time to come. Too much cannot be said of the enterprising way in which this company have been working and prospecting, and also in lending their assistance to all who visited the creek.

“Mr. N. Duteau has been prospecting for the past two months by tunnelling into the hill above the Christian and Schneider claims, and, I am glad to be able to report, that at the time of my laying over the claims, November 15th, had struck a prospect sufficient to convince him of the existence of pay-dirt, and he is under the impression that he is on a continuation of the lead owned by the adjoining company.

“Very fair prospects have also been found on a small creek known as Fall Creek, emptying into Cherry Creek, and it is the opinion of several old miners who visited the diggings last summer, but who, from want of means, were unable to prospect thoroughly, that eventually some rich strikes will be made on this tributary.

“Messrs. Busy and Thorpe (whom I mentioned in my last report as having made some ten ounces a day to the hand in the early part of the season, on a small bar of Cherry Creek, and which they worked out) started over the mountains during the month of August to prospect the head waters of Kettle River. They report having discovered one of the main branches of this river, at a distance of about fifteen miles from Cherry Creek; and, although exposed to severe storms of snow and rain, deterring them from properly examining the locality, panned out sufficient gold (of a coarse quality) to lead them to suppose that gold existed in paying quantities; so much so, that it was the intention of these men, on their return to Cherry Creek, to form a prospecting party and revisit the ground. In consequence of the bad weather which continued till late in the season, it was considered unadvisable to dispatch a party this year. It is, however, purposed by the settlers and miners in the Okanagan District, to subscribe and fit out a party the ensuing season, to thoroughly test the Kettle River country.

"The old quartz excitement on Cherry Creek has again been revived by the discovery of a quartz ledge on the opposite side of the creek to that where the old Cherry Creek Silver Mining Company formerly worked. It will be remembered this company expended some \$15,000 or \$20,000 in seeking and endeavouring to trace a vein of ore which they had discovered on the surface, but unfortunately, after prospecting for nearly two years at great expense (provisions, &c., then being very high), had to abandon the work without attaining any permanent result, having entirely lost the vein of ore, some of which assayed as much as \$2,000 to the ton. Claims have now been located by Campbell, Bissett and others, and these men are confident of having struck a continuation of the same ledge as that on which the original company worked.

"Mr. Dawson, of the Geological Survey, visited this creek last summer, and, in my presence, carefully examined several ledges of quartz, he also inspected the different alluvial claims then being worked, and gave it as his opinion that this section of the country was highly rich both in gold and silver.

"It is sincerely to be hoped that the Government will see the necessity of sending Mr. Harper, the Mining Engineer, next season to examine and report upon the quartz ledges on this creek.

"The new trail to these mines was completed, under my superintendence, about the end of August, and has proved a great assistance to the miners and others in enabling supplies to be packed into the mines at a lower rate of freight. This trail, having been made on an easy grade, could be converted into a waggon road should future discoveries justify its construction.

"On Mission Creek, at the southern end of my district, and at a distance of eighty miles from Cherry Creek, mining has also been successfully carried on this past season, and the McDougall claim have averaged about \$4 a day to the hand, even working in the most primitive manner, by packing the pay-dirt (cement) from their claim to the creek and washing out the gold with rockers.

"A company have, however, started to convey water from the creek on to the benches. This has been a long and expensive undertaking, and the promoter, Mr. Squires, deserves great credit for the work, which when completed will, it is supposed, bring a quantity of alluvial ground under water power.

"In compliance with the wishes of the miners in the district I have laid over the claims from November 15th, 1877, to April 15th, 1878.

"I have, etc.,

(Signed)

"CHAS. A. VERNON,
"Assistant Gold Commissioner."

KAMLOOPS.

A few Chinamen continue to work on Tranquille River, but the Government Agent is unable to report any new discoveries of paying ground.

"KAMLOOPS, October 2nd, 1877.

"SIR,—I have the honour to forward mining statistics for the year 1877, Kamloops Division, District of Yale.

"There has been little or no prospecting done in this portion of the district during the past year, and, consequently, there are no new discoveries to report. Some ten or twelve Chinamen are still working on Tranquille River, making small wages.

"I have, etc.,

(Signed)

"JOHN USSHER.

"Thomas Elwyn, Esq.,

"Deputy Provincial Secretary, Victoria."

FRASER RIVER.

Yale and Hope.

The bars and benches on this section of the Fraser appear to be inexhaustible; in fact, Mr. Teague's estimate of the amount of gold taken out in 1877 exceeds that made by him for the previous year. When it is considered that the ground in question has been more or less worked for twenty years, the result is truly astonishing. Mr. Teague's report, which follows, is decidedly encouraging.

"YALE, B. C., 29th September, 1877.

"SIR,—In compliance with your request of the 25th July last, I beg to submit my report, with mining tabular form giving statistics of mining for the Hope and Yale divisions for 1877, by which you will observe there appears to be signs of improving prospects. The past winter was an unusually mild one, therefore producing most favourable opportunities for the desultory mining operations successfully carried on in these placers, without any intermission, up to within a recent date, when operations had to be temporarily suspended for the want of a sufficient supply of water for sluicing. I have not been able to make a personal visit throughout these divisions, but from the most reliable sources I gather my information that the results of the placer deposits will compare most favourably with and exceed the amount of gold obtained in these divisions of recent years.

"The party of white men prospecting on Siwash Creek, and alluded to in my report of last year, remained and mined during the winter, or for a period of about eight months, on a bar situate just below the mouth of Siwash Creek, but with what kind of success I am unable to inform you, as apparently every thing was kept by them with a singular reticence.

"A company of three Indians, during the months of February and March last, were working on the bank of the Fraser near the 18-mile post, and within the short space of six weeks succeeded in taking out with a rocker the snug little sum of \$1,500, thus evidently supporting the belief that there are yet numerous placer deposits remaining undiscovered in the banks of the Fraser, that will eventually prove a source of wealth to those who have the enterprise to develop them.

"I am pleased to report a company of Chinamen have struck fairly remunerative diggings on Trafalgar Flat, about three miles above the town of Hope, from which they informed me they obtained from \$3 to \$4 per day to the hand. Numerous benches, or extensive flats, can be seen stretching along the course of the Fraser, bearing the same characteristic indications of alluvial deposits which can be worked inexpensively, and very little skill is required in the manner of working them. The claim at the head of the famous Hill's Bar, worked by a company of six Chinamen, yielded very favourable returns, and would have no doubt continued to do so throughout the year, had not the company been compelled to suspend operations temporarily for the want of a sufficient supply of water for sluicing. The pay they find still continues into the bank, and they have a large piece brushed off preparatory for the fall season's work.

"Until the late rains the creeks emptying into the Fraser were exceedingly low, several being almost dry, and the consequence was mining operations on the benches were suspended; the long drought and excessive heat rapidly melting the snow from the mountain tops, thereby causing the low stage of water in the Fraser to be unprecedented, leaving strong impressions upon the minds of old settlers that the water will be at a lower mark during the coming winter than any yet seen, affording favourable advantages for working the bars in the Fraser, whose hidden treasures have laid for centuries untouched. The extensive flat opposite Yale, and stretching away adjoining the celebrated Hill's Bar, was applied for by a company of capitalists from San Francisco, who intended to carry on mining operations on a gigantic scale; but their request, I regret to say, was unfortunately not acceded to, therefore leaving a monotonous aspect instead of a busy scene of mining enterprise.

"The silver mines in these localities, I deeply regret to inform you, are lying dormant and intact, for the want of capital or enterprise to work them; therefore I am unable to submit any further important changes respecting the development of any of

these promising resources. All successful mining must be based on the principle that mineral riches, as a rule, increase as depth is attained. Some of the most successful mines in Cornwall have returned millions of pounds sterling, although often the riches were not arrived at before the shafts were sunk some 100 fathoms from the surface. It is quite true that ores in many cases have given out at comparatively shallow depths; but over and over again miners have discovered that, after passing through a barren floor of silicine matter, a fresh deposit, richer than the surface ore, has rewarded their energy and perseverance. Upon these principles the nerve of the adventurer should be braced to invest his capital, together with the services of practical and skilful mining superintendents; then the metalliferous deposits of these divisions would not languish for the want of enterprise to develop and realize the riches of our hidden storerooms of untold wealth.

"I have, etc.,
(Signed)

"WILLIAM TEAGUE,
"Government Agent."

"To the Honorable,
the Minister of Mines."

COAL.

It is most satisfactory to be able to report that, notwithstanding the continued depression of the coal market in San Francisco, the total yield of coal for the year 1877 exceeded by nearly 15,000 tons the output of 1876.

The depression above referred to has been the cause of the non-continuance of work at the Harewood Mine; should, however, the price of coal in San Francisco again become a paying one, active operations will be recommenced. For precisely the same reason, the Baynes Sound Co. have temporarily ceased to take out coal. The company, however, are not idle, and, acting on the advice of a geologist, are engaged in boring, between the present mine and the sea, with the view of still further testing the value of their property.

Returns from the different collieries are annexed.

RETURN OF COAL RAISED AND SOLD, 1877.

	Actual output of coal, 1877. Tons.	No. of tons sold for home con- sumption.	No. of tons sold for exporta- tion.	No. of tons on hand, Jan. 1st 1877.	No. of tons un- sold, Jan. 1st 1878.
Yanconver Coal Co.....	94,809	16,869	68,789	10,509	19,670
Wellington Colliery.....	48,743	6,342	37,486	1,273	6,794
Harewood Mine.....	9,000	500	8,760	600	400
Baynes Sound Coal Co...	1,500	600	415	500	700
TOTALS.....	154,052	24,311	115,381	12,882	27,564

COMPARATIVE STATEMENT SHOWING AMOUNT OF COAL RAISED AND SOLD IN 1876 AND 1877 RESPECTIVELY.

Total output of coal, 1877.....154,052 tons.
Do. do. 1876.....139,191 do.

Increase for 1877,.....14,861 tons,

NANAIMO COLLIERIES.

Output of Coal for 12 months ending 31st Dec., 1877.	No. of tons sold for home consumption.	No. of tons sold for exportation.	No. of tons on hand January 1st, 1877.	No. of tons unsold, including coal in stock Jan. 1st, '78.
94,809½ tons.	16,869.	68,780.	10,509 8 cwt.	19,670 3 cwt.
No. of hands employed.			Wages per day.	
Whites. Men, 301. Boys, 17.	Chinese, 87.	Indians, 23.	Whites. \$2 to \$4	Chinese. \$1 to \$1 25. Indians. \$1 to \$1 50.
Total hands employed, 428.			Miners' earnings per day, \$2 75 to \$5 00.	

NOTE.—The number of hands employed does not include Indians or Chinamen working for Miners and paid by them.

Name of seams or pits..... Douglas, Chase River, and Fitzwilliam.

Value of plant..... \$123,000.

Description of seams, tunnels, levels, shafts, &c., and number of same.

Douglas Mine, Nanaimo, worked by slope; there are six levels, three of which are in operation, the coal in the lowest is about 5½ to 6 feet thick. The product of this mine is first-class for gas making purposes. The old Douglas pit is now used as an up-cast shaft.

New Douglas Mine, is situated near Chase River, about 1½ miles from the old Douglas Pit. The mine is being opened up by slope with three North and South levels. The thickness of the seam extends from 4½ to 9 feet of very clean coal, which is known as New Douglas, or Chase River coal, and is held in the highest estimation in the foreign and domestic markets for steam and household purposes. The capacity is now upwards of 280 tons, which will be doubled on completion of the powerful hoisting and pumping engine in course of erection.

Fitzwilliam Mine, on Newcastle Island, is worked by slope of 800 yards. The coal produced is of a first-class quality for steam and household use.

Newcastle Mine, not in operation; 240 yards by slope, on Newcastle Island.

Chase River Mine, 290 feet deep by shaft; not in operation.

Description and length of tramway, plant, &c.

The railway is a little more than 2 miles in length, constructed of heavy double-headed steel rails, 52lbs to the yard, laid on chairs, bolted to wooden ties. The railway extends from the New Douglas Mine to the Company's loading pier, with branches and sidings to the Douglas Pit, &c.

The Company have fifty 5½ ton coal cars and fifty of 3½ tons, and three powerful locomotives. There are facilities at the Company's wharves for delivering 1,500 tons of coal per day.

(Signed) M. BATE,

WELLINGTON COLLIERIES.

Output of Coal for 12 months ending 31st Dec., 1877.	No. of tons sold for home consumption.	No. of tons sold for exportation.	No. of tons on hand, 1st January, 1877.	No. of tons unsold, including coal in stock, Jan. 1, 1878	
48,743½ tons.*	6,342½ tons.	37,486½ tons.	1,273 tons, 1 cwt.	6,794 tons, 13 cwt.	
No. of hands employed.			Wages per day.		
Whites, Men, 162 Boys, none.	Chinese, 80	Indians, 10	Whites, \$2 to \$3 75	Chinese, \$1 to \$1 25	Indians, \$1 to \$1 25
Total hands employed, 252.			Miners' earnings per day, \$3 to \$4.		

*Strike by miners four months.

Name of seams or pits..... *Wellington Mine, No. 1 slope.*

Value of plant..... \$140,000.

Description of seams, tunnels, 8 to 10 feet thick; shaft one, 183 feet, not working; two levels, shafts, &c., and number 3 feet seams.
of same.

Description and length of tram- 3½ miles railway, 3 locomotives, over 100 waggons, 3 engines, and 2 steam pumps, &c., &c.

(Signed) *R. DUNSMUIR,*
Managing Partner.

HAREWOOD COLLIERY.

Output of Coal for 12 months ending 31st Dec., 1877.	No. of tons sold for home consumption.	No. of tons sold for exportation.	No. of tons on hand 1st January, 1877.	No. of tons on hand 1st January, 1878.	
9,000 tons.	500 tons.	8,700 tons.	600 tons.	400 tons.	
No. of hands employed.			Wages per day.		
Whites, Men, 40 Boys, 3	Chinese, 40	Indians, none.	Whites. \$2 to \$4	Chinese. \$1 12½	Indians. —
Total hands employed, 83			Miners' earnings per day, \$2 to \$4		

Name of seam or pits *Harewood.*Description of seams, tunnels,
levels, shafts, &c..... 1 workable seam, from 3 feet to 9 feet; 1 tunnel (water level); air level, 6 feet by 6 feet; drawing level, 6 feet by 18 feet.

No. of same 1 tunnel, 2 levels (1 air and 1 drawing).

Description and length of tram-
way, bunkers, &c..... 2 miles and eight-tenths in length (aerial tramway);
capacity of bunkers about 800 tons.

BAYNES SOUND COLLIERY.

Output of Coal for 12 months ending 31st Dec., 1877.	No. of tons sold for home consumption.	No. of tons sold for exportation.	No. of tons on hand 1st January, 1877.	No. of tons unsold, including coal in stock, Jan. 1, 1878
About 1,500 tons.	About 600 tons.	415 tons.	About 500 tons.	About 700 tons.

Name of seams or pitsNo. 2, or old seam; No. 4, or new seam.

Value of plantAbout \$67,000.

Description of seams, tunnels,
levels, shafts, &c., and number

of sameOne 7-foot seam (No. 2); one 4 ft. 6 in. (No. 4); about
six tunnels.

Description and length of tram-

way, plant, &c.....3½ miles; 1 Baldwin 8-ton locomotive; about 25 cars.

" OFFICE OF INSPECTOR OF MINES,

" Victoria, November 1st, 1877.

" SIR,—I have the honour to report that, in pursuance of instructions received, I proceeded on the 9th ultimo to Nanaimo and Baynes Sound, for the purpose of making an inspection of the several collieries situated in those districts.

" Baynes Sound Colliery.

" This company is at present only working one drift, which is driven 'level free' into the No. 4 seam for about 400 feet on the north side of the river. Two other drifts have been run in, but are now closed. The workings are of but small extent as yet, on account of the faulty nature of the ground. The roof is composed of hard sandstone and requires very little supporting by timber. The air passing around the mine was amply sufficient for the number of men employed, viz.: seven. I have written to the company's manager, drawing his attention to some of the clauses in the 'Coal Mines Regulation Act.'

" Wellington Colliery.

" This colliery is worked by means of a slope off which levels are driven on each side. The slope is divided by a strong row of timbers running down the centre, one side being for the hauling rope, the other a travelling way for the men. The ventilating furnace is built on a very good principle, and is capable of producing a large amount of air. Telegraph wires run from the lower workings up the main slope into the engine house, from any point of which a signal can be given to stop the engine or otherwise by merely pressing the two wires together.

"The method of ventilating the workings, at present in use, is the 'separate split system.' This object is accomplished by splitting the air so that instead of allowing the whole of the air to traverse the entire workings, a separate portion is conducted into each district, which sweeps the faces and is then taken straight back into the main return airway (by means of overcasts) and up to the furnace. By this means, each small group of men get nearly pure air instead of its being sub-charged with carbonic acid gas and other deleterious matter. As the mines were not working the day I made the inspection, I did not measure the quantity of air passing into the workings, as the amount would have been entirely different when all the men were in and blasting had been going on, but I considered that there was quite sufficient when conducted well up to the faces. About 120 men are employed below ground, and are divided into two gangs—one gang working on each shift.

"The whole colliery was in good condition both above and below ground, with but few exceptions, of which I have notified the manager. I only found carburetted hydrogen gas (fire damp) in one place; and that was only a small quantity. There are

three (3) means of escape for men out of the pit, viz.: the main slope, the adit level, and the upcast shaft, in which is placed an iron ladder. The shaft near Departure Bay, which was sunk to an upper seam, is not being worked at present, but is securely planked over.

"Harewood Colliery.

"This colliery consists of a drift run 'level free' into the bluff, and stalls worked up to the rise of same. I found by measurement that 5,160 cubic feet of air were passing round the workings per minute, which amount divided amongst 16 men (the number at present working on a shift) gave 322 cubic feet per minute per man. The roof is very treacherous in several parts of the mine, being composed of shale, full of 'slips' and 'pot-holes,' and requires great watchfulness on the part of the miner employed, but plenty of timber seemed to be both supplied and advantageously used. The only gas ever met with here is carbonic acid gas (black damp), and that, I was informed, is very rarely seen. In accordance with the 'Coal Mines Regulation Act, 1877,' some alterations will have to be made, about which I have written to the proprietor.

"Cornish Shaft.

"This is a new shaft which has been sunk by Messrs. Francis and Nicholas on their farm, situate between Wellington and Nanaimo. The shaft is down to what is commonly known as the 'Dunsmuir Seam,' which at that point is 147 feet below the surface. The coal sunk through was 12 feet thick. The shaft is being enlarged and secured, but no work has been done in the coal as yet.

"Douglas Pit—Douglas Seam.

"This pit is the oldest at present working in the country. Now that it is connected with the Chase River Mine, it forms a continuous network of levels, stalls, &c., for over two miles in length. The pitch of the seam is very irregular over the whole of this field, varying from 13° to 76°, which makes the working of it very intricate and difficult to ventilate at times. The slope by which the coal is brought to surface is about 700 yards long, at the bottom of which nearly all the work is being done at present. At the time I made the inspection there were 61 miners, besides runners, bratticemen, &c., in all about 75 men, working in the pit, but not all on one shift. I found that in No. 4 level there were 2,898 cubic feet of air passing per minute, which, divided amongst the 21 men employed in this level on one shift, gives an average of 138 cubic feet per minute per man. In Nos. 5 and 6 levels, which are ventilated by a different current from No. 4 level, I found 3,510 cubic feet passing per minute, giving an average of 121 cubic feet per man. This, I consider, is rather too small a quantity of air to keep the faces clear of smoke, &c., and in fit condition for men to work in; but Mr. Bryden, who is the manager, informed me that he contemplated making a change in the intake air-courses, and also in the position of the ventilating furnace, by which he hoped to obtain a much larger supply of air. On looking over the firemen's report book, I noticed that on several occasions small quantities of carburetted hydrogen gas had been encountered in the faces, but no accidents had occurred through it. There are four (4) different means of escape from this pit, viz.: by the main slope, the shaft, the adit level, and through into Chase River Mine. The workings are in a good state as regards safe timbering, man-holes, &c.

"Douglas Shaft—Lower Seam.

"This seam is not being worked at present. The old Douglas Shaft was sunk down and reached this seam at a depth of 283 feet from surface. Some prospecting was done, but it has been abandoned for a time on account of the extreme irregularity of the coal.

"Chase River Mine—Douglas Seam.

This is, in my opinion, a model pit in every respect. The workings are laid out with great regularity and the ventilating furnace is a fine piece of work, capable of producing 40,000 cubic feet of air per minute at any time if needed. The air is divided into five different main splits, and each main split into several smaller ones. The total number of men employed in this pit is 104, half of whom work on each shift. No one

split of air is taken past more than 21 men at the faces. The total amount of air passing through the pit, I found by measurement to be 24,408 cubic feet per minute; this amount of air distributed amongst the 52 men who are, as a rule, in the mine at one time, gives an average of 469 cubic feet per man per minute.

"Fitzwilliam Mine."

"This pit is situate on Newcastle Island, near Nanaimo. I found on inspection that in the main return airway 5,670 cubic feet of air were passing per minute, but in the airway, near the stalls at present working, only 2,970 cubic feet per minute, thus showing the difference to be gained by leakage through 'stoppings,' &c. Forty men are employed underground, but only 20 are in the mine at one time, thus having an average of 148 cubic feet of air per minute per man. The furnace and upcast shaft are, I was informed, going to be repaired immediately, when, I have no doubt, there will be a great improvement in the ventilation. The workings are in a safe condition.

"Newcastle Mine."

"This mine is abandoned.

"I have notified Mr. Bryden, who is the Manager of the five last-mentioned mines, with regard to alterations and additions which I noticed would have to be made in order to comply with the Act.

"I would beg to state that as I received my appointment so recently, I think it would be very injudicious on my part to offer any remarks as to the probable working of the Act, which has not as yet got fairly into operation.

"I have, etc.,

*"The Hon. A. C. Elliott,
Minister of Mines."*

(Signed)

*"EDWARD GAWLER PRIOR,
Inspector of Mines."*

*"INSPECTOR OF MINES' OFFICE,
Victoria, January 10th 1878."*

"SIR,—I have the honour to report that on the 11th December last, I proceeded to Nanaimo, in order to ascertain whether the alterations, &c., suggested by myself after my last inspection of the Collieries situated there had been attended to. One of the chief objects I had in view, was to measure the air in the Wellington Colliery when all the men were working underground, as at my inspection the pit was laid idle. Although the latest information I could gain before leaving Victoria was, that the mine was working steadily every day, yet, when I arrived there, I found that work had been suspended again, as there were no ships taking coal at the wharves.

"I found that at none of the pits proper attention had been paid to clause 46, article 9, paragraph D, 'Coal Mines Regulation Act, 1876;' although in my notices to the Managers of the said Collieries, I had particularly requested them to see that by the 30th November, 1877, the tools described in the said clause should be in general use.

"Only a few men were in possession of the proper tools, whereas all miners are, by the Act, required to use them.

"The alterations affecting ventilation had been promptly attended to, and I am glad to say very beneficial results have been attained.

"The additional instruments, &c., required by the Act had been ordered, and will, I expect, be in use in a short time.

"No 'special rules' have, as yet, been submitted to me, but I am informed that they are in course of compilation.

"I am sorry to have to report a fatal accident which took place in the Chase River Mine on the 10th December, 1877, by which one John Wood, a miner, met his death. From the evidence given at the Coroner's Inquest, which took place on 11th December, it appears that Wood and his partner had fired a 'face shot' which had only loosened the coal and not thrown it down; they had then commenced holing under it, and although Wood was warned by his partner to be careful, as it seemed unsafe, he persisted in working too long, for the whole piece came away suddenly, and a small piece from the top striking him on the neck he was killed instantaneously. Deceased was a very steady and careful workman, and an excellent miner, but in this instance he did wrong in holing a shot that had been fired. He ought either to have put another small shot in, or have 'spragged' or 'braced' the coal before mining it.

"I went down the mine and examined the place where the accident occurred, nothing having been moved. I found that the cause of the coal falling away so suddenly, was a crack formed by an old 'rib shot.' There was also a natural slip in the coal, which the deceased could not possibly have been aware of, and which very materially weakened the coal.

"No blame can be attached to anyone connected with the mine, as the accident was purely the result of the deceased putting too much confidence in his knowledge of the coal.

"The fact that the coal in these collieries does not fall easily after being holed, accounts for the accidents and many narrow escapes that occur, as the miners are accustomed to trust so much to it that they get, in many instances, very careless of themselves, and run fearful risks.

"Several men have been more or less injured in different ways since I received my appointment, but as none of the injuries have proved fatal I need not describe them.

"I have, &c.,

(Signed)

"EDWD. GAWLER PRIOR,

"Inspector of Mines."

"The Hon. A. C. Elliott, Minister of Mines."

COPPER.

The accompanying report to the Minister of Mines, received from Mr. Harper, the Government Mining Engineer, after a personal inspection of the "Howe Sound Copper and Silver Mine," is wonderfully encouraging. Mr. Harper not only pronounces the lode to be a true fissure vein, but states that it is the richest ore of its character which he has ever seen on this coast or in England. Mr. Harper's belief that the country between Howe Sound and Jervis Inlet will in time become a great mining district, is well worthy of attentive consideration.

"VICTORIA, B. C., June 26th, 1877.

"SIR,—I have the honour to inform you that, in pursuance of instructions received by me, I proceeded to visit and inspect the Howe Sound Copper and Silver Mine, and beg to report as follows:—

"In consequence of a considerable depth of snow on the summit of the mountain where the mine is situated, I was not able to follow the lode continuously for any great distance, but on the south-east side there was about three hundred feet of the lode exposed. I examined it and found it about two and one-half feet wide, running nearly east and west. The lode, which I pronounce to be a true fissure vein, has a perpendicular foot wall. There are stringers further south which, at a lower level, will run into the lode.

"The ore is of a rich character, made up of what are known as Peacock and Grey ore and oxide of copper. It carries also a large percentage of silver. It is the richest ore of this character I have ever seen on this Coast or in England.

"The formation is granite. In Cornwall, England, the richest copper mines are in granite. In Nevada the richest silver mines, with the exception of the Comstock, are in granite. I firmly believe that the lode will, at a greater depth from the surface, prove to be richer in silver than in copper. I can, with confidence, recommend it to mining capitalists.

"I beg to inform you that there is no road to the mine, which is, in consequence, at present difficult of access. I would recommend that a competent person be sent to examine the country between the mine and the salt water, with a view to laying out a road in the most eligible location. Not only may the mine I have made particular reference to be thus opened, but the ground on the east and west may be worked also.

"I believe, in time, the country between Howe Sound and Jervis Inlet will be a great Mining District.

"I have, etc.,

(Signed)

"R. B. HARPER,

"Government Mining Engineer."

"To the Honourable
the Minister of Mines."

FIFTH ANNUAL REPORT
OF THE
MINISTER OF MINES
FOR THE
YEAR ENDING 31st DECEMBER
1878.
BEING AN ACCOUNT OF
MINING OPERATIONS FOR GOLD, COAL, ETC.,
IN THE PROVINCE OF
BRITISH COLUMBIA.





FIFTH ANNUAL REPORT

OF THE

MINISTER OF MINES

FOR THE

YEAR ENDING 31st DECEMBER,

1878.

BEING AN ACCOUNT OF

MINING OPERATIONS FOR GOLD, COAL, ETC.,

IN THE PROVINCE OF

BRITISH COLUMBIA.



VICTORIA: Printed by RICHARD WOLFENDEN, Government Printer,
at the Government Printing Office, James' Bay.

PROVINCE OF BRITISH COLUMBIA.

TABLE

Shewing the actually known and estimated yield of Gold; the number of Miners employed; and their average earnings per man, per year, from 1858 to 1878.

Year.	Amount actually known to have been exported by Banks, &c.	Add one-third more, estimate of gold carried away in private hands.	Total.	Number of Miners employed.	Average yearly earnings per man:
1858 (6 months)	\$ 390,245	\$ 130,083	\$ 520,328	3,000	\$ 173
1859	1,311,304	403,768	1,615,072	4,000	403
1860	1,671,410	557,133	2,228,543	4,400	506
1861	1,999,539	666,529	2,666,118	4,200	634
1862	} 3,184,700	1,061,566	4,246,266	4,100	517
1863				4,400	482
1864	2,801,438	933,963	3,735,401	4,400	849
1865	2,618,404	872,801	3,491,205	4,394	813
1866	1,996,530	665,526	2,662,056	2,982	893
1867	1,540,651	520,217	2,060,868	3,044	814
1868	1,779,739	593,243	2,372,982	2,380	992
1869	1,331,234	443,744	1,774,978	2,369	749
1870	1,002,717	334,239	1,336,956	2,348	569
1871	1,349,530	449,800	1,799,330	2,450	734
1872	1,368,229	452,743	1,820,972	2,400	671
1873	979,312	326,437	1,305,749	2,300	567
1874	1,383,464	461,154	1,844,618	2,868	643
1875	1,866,178	618,728	2,484,906	2,024	1,222
1876	1,333,996	446,662	1,780,658	2,282	783
1877	1,308,136	402,045	1,710,181	1,900	820
1878	1,062,670	(1 21th) 312,634	1,375,304	1,883	677
			\$42,837,004	64,094	

PROVINCE OF BRITISH COLUMBIA.

MINING STATISTICS FOR 1878.

DISTRICTS AND THEIR DIVISIONS.	No. of Claims worked.	No. employed.		Rate of Wages.		Estimated yield.	Value per Ounce
		Whites.	Chinese.	Whites.	Chinese.		
CARIBOO.							
Barkerville Polling Division:							
Williams Creek	19	76	59	\$ 5 00	\$ 2 50	\$ 73,790	\$15 70 to \$16 24
Stout's Gulch	2	5	19	"	"	14,780	17 30
Lowhee creek	2	5	16	"	"	3,500	17 50
Mosquito creek	5	10	"	"	"	4,100	17 50
Grouse creek	8	18	22	"	"	10,800	16 04
Antler creek	6	8	16	"	"	5,000	16 00 16 71
Cunningham creek	5	9	16	"	"	9,000	16 16
Conklin's gulch	6	20	"	"	"	6,200	16 00
Stevens, California, and Begg's creek	6	8	16	"	"	3,100	15 75 16 41
Willow river and tributaries	7	17	"	"	"	2,000	16 00 17 04
McCallum, Walker, and Eureka gulches	3	2	5	"	"	1,000	16 00 16 54
Lightning Creek Polling Division:							
Lightning creek	7	49	35	\$4 to \$5	\$ 2 50	63,196	16 70 17 61
Last Chance creek	3	1	4	"	"	1,300	17 75
Van Winkle creek	1	4	"	"	"	"	"
Chisholm creek	4	11	"	"	"	875	17 50
Coulter creek	1	"	4	"	"	300	17 50
Lower Lightning creek	10	6	47	"	"	19,870	16 00 17 51
Cottonwood river	10	"	39	"	"	22,630	16 00 17 51
Peter's creek	5	16	10	"	"	3,700	17 75
Nelson creek	6	"	26	"	"	39,550	17 65
Burn's creek	6	5	19	"	"	18,300	17 75
Davis creek	2	"	13	"	"	4,124	17 65
Ruchon creek	2	2	"	"	"	500	17 65
Berry and Deadwood creeks	3	11	"	"	"	500	"
Perkins gulch	1	3	"	"	"	1,000	17 45
Fountain creek	1	"	4	"	"	600	17 60
*Dragon creek	2	2	"	"	"	"	"
Keithley Creek Polling Division:							
Keithley and other creeks	35	40	180	\$5 00	\$ 3 00	57,000	16 30 17 41
Fraser River, Lower Quesnelle, Canon & Hixon cks.	15	.....	120	.....	.....	15,000†	15 00 17 01
CASSIAR.							
Dease creek	46	90	258	\$ 6 00	\$ 4 00	62,800	15 30
Thibert creek	31	91	27	"	"	65,600	16 00
Defot creek	27	84	.....	"	.....	75,000	16 00
McDame and adjoining creeks	53	184	60	"	\$ 4 00	101,320	17 00
KOOTENAY.							
Wild Horse Creek	16	13	32	\$ 4 00	\$ 3 50	20,650	18 00
Perry Creek	4	2	16	"	"	4,750	18 00
KAMLOOPS.							
Tranquille River	6	.....	8	.....	.....	2,400	16 00
Fraser River	2	6	16	.....	.....	14,000	15 00
	368	798	1,085			\$ 727,335	

* Prospecting.

† Estimated from best information obtainable.

REPORT

OF THE

MINISTER OF MINES

FOR THE YEAR 1878.

To His Honour ALBERT NORTON RICHARDS, Lieutenant-Governor of the Province of British Columbia :

MAY IT PLEASE YOUR EXCELLENCY:—

I have the honour herewith to present to Your Honour the Fifth Report of the Mining industries of the Province.

All of which is respectfully submitted.

I have the honour to be,
Your Honour's obedient servant,

T. BASIL HUMPHREYS,

Provincial Secretary & Minister of Mines.

18th March, 1879.

REPORT.

GOLD MINING.

The amounts actually exported by the Banks for 1878 are as follow:—

Bank of British Columbia.....	\$264,710 64
Bank of British North America.....	417,856 96
Garesché, Green & Co.....	380,102 58

Total..... \$1,062,670 18

Hitherto one-third has been added to cover the amount of gold exported in private hands. It seems, however, impossible to believe that private export can possibly reach that proportion. Allowing a fifth, the total yield for the year 1878 would be about \$1,275,000.

The reports from the Gold Commissioners and Government Agents do not nearly reach this amount, but—as it was remarked in the Mining Report of last year—it is most difficult for these officers to correctly estimate the yield of gold, while, on the other hand, there can be no possible doubt as to the amount exported by the Banks.

CARIBOO.

It would be useless to deny that the great hopes entertained during the earlier part of the season of the past year that the quartz mining interests of Cariboo were about to be successfully developed, have not been realized. It would appear that the people of the Province failed to understand that the development of quartz mines involved the expenditure of a vast amount of capital. The sums expended have probably not been altogether thrown away. Great experience has been gained, and it is the opinion of most practical miners that, in the near future, the quartz ledges of Cariboo will prove themselves to be profitable investments for capitalists.

The few well-known creeks of Cariboo have now been worked for so many years that it cannot but be expected that the yield of gold should fall off in the absence of the discovery of new and important creeks.

To the indefatigable prospectors of Cariboo, the Province must look for such discoveries, and it would appear from the reports of the Government Agents that on many outlying creeks such work is being vigorously prosecuted.

On Lightning Creek mining was carried on for about ten years before the richest ground—so far as yet known—was worked.

On both Antler and Grouse Creeks rich leads of gold were suddenly lost. This was notably the case on Grouse Creek in the Heron Claim, where it entirely disappeared, and although prospected for almost continuously ever since 1867, has never yet been found. That it exists, there can be little doubt. Antler Creek has also puzzled the most experienced miners. For a short distance rich ground was found—either on the high rock or in the bed of the stream—but repeated efforts have failed to discover paying ground either above or below. That gold should have been deposited from one or more given points on a creek is perfectly comprehensible, but very few experienced miners will admit that a heavy run of gold suddenly ceases to exist. It is not, therefore, being unduly sanguine to expect that Antler Creek may yet again be the scene of mining prosperity.

The recent discoveries made in the Horsefly Country are of importance and most satisfactory. This section of the Cariboo District is situated on the direct line of the gold belt—which apparently extends from Kootenay to Cassiar,—and many miners have long considered that this part of the Province would eventually be proved rich in gold.

The remark of the Government Agent at Richfield, referring to quartz, regretting the absence of "united effort among the owners of adjoining locations," is most sensible. There can be no doubt that thousands and thousands of dollars have been needlessly expended for want of "united effort." The Agent is right in describing the "Bonanza" lode as "an immense body of ore," and the problem to be solved is whether the ore at lower levels than those yet reached is of a grade high enough to admit of its being profitably worked. An earnest effort in this direction would be of great advantage to the Province. Since the Government Agent wrote his report, an application has been made for a lease of the lower part of William's Creek, known as the Meadows. This is satisfactory, being good proof that, notwithstanding previous failures, confidence in the richness of the ground remains unabated.

The reports of the Government Agents at Richfield and the Forks of Quesnelle are, to a great extent, satisfactory and most certainly interesting. The yield of gold from the alluvial deposits of this important district has, no doubt, decreased, but probably only temporarily; and it should be borne in mind that it was, to some extent, caused by the quartz excitement. A large number of miners were prospecting for quartz and running tunnels in rock, when, under other circumstances, they would have been prospecting for, or working in, alluvial diggings.

"RICHFIELD, October 27th 1878.

"To the Hon. the Minister of Mines.

"SIR,—I have the honour to enclose herewith the mining statistics of Barkerville, Lightning Creek, and Quesnelle Polling Divisions, for the year, which, although exhibiting a total yield of gold somewhat less than that of last year, is, nevertheless,

a larger yield per man for the actual time of working, as a large number of men enumerated in the tables was employed during a portion of the year in prospecting the quartz veins; and you will notice that in making out the statistics I have not strictly adhered to the forms as sent me. When miners understand that their claims will not be separately reported in those statistics, we can more easily obtain correct information as regards the amount of gold they have taken out, hence the change I have made in the forms.

"Having obtained the total amount of gold dust purchased by the Banks for the year, viz., \$387,017, and after deducting therefrom the amount brought in from Keithley Creek and the Forks of Quesnelle, and also making an allowance for the probable amount taken out of the district in private hands, it would appear that the figures in the tabular statement may be considered approximately correct, as the following tabulated statement will show:—

Gold yield of Barkerville Polling Division	\$ 132,370
" Lightning Creek do.	176,445
" Quesnellemouth do.	15,000
Amount received from crushing Quartz	1,000
Estimated amount not reported to Collectors.....	30,000
	<u>\$ 354,815</u>

Amount purchased by Banks, less \$48,000 which came from Keithley and Forks of Quesnelle	\$ 339,017
Estimated amount taken out of District in private hands	15,798
	<u>\$ 354,815</u>

"Considerable prospecting has been going on during the latter portion of the season on outlying creeks. A large company has been formed for the purpose of prospecting Deadwood Creek, and it is their intention to carry on operations during the winter.

"On Peter's Creek two companies are now prospecting, and I have learned that one of them, on reaching bed-rock, obtained a prospect sufficient to pay wages. Should this prove continuous, a large amount of ground is now open for location, as the creek is some eight miles in length.

"On Lower Lightning Creek, about four miles above its confluence with Swift or Cottonwood River, a company (the Big Bonanza) has sunk a shaft some eighty feet, obtaining at that depth a good prospect, but was, I understand, unable to reach bed-rock, in the deepest part of the channel, owing to the quantity of water with which the company had to contend. They are still persevering, putting on pumps and machinery of greater capacity than those they have hitherto used.

"Several companies have made locations on the benches of Antler Creek, some ten miles from its source, from which good prospects have been obtained. As these benches are extensive, I anticipate that quite a number of men will here find remunerative employment for several years.

"Snowshoe Creek, a tributary of Keithley, has attracted considerable attention during the past year, and several companies are now prosecuting their researches with every prospect of success.

"In the southern part of the district, important discoveries have been made by Chinamen on Horse-fly River. These discoveries immediately attracted the attention of the farmers and ranchmen of that vicinity. Several locations have been made and companies formed by white men, some of which it is reported have proved to be rich. The country is new and extensive, and many believe that this section of the district will prove to be a most important mining camp.

"Mr. Archer, who collected the statistics for Lightning Creek polling division, speaks most favourably of Nelson Creek, which, according to his returns, shows a larger yield of gold per man than any creek or gulch in the district: No white men are working on this creek, and the collector reports still a large amount of unoccupied ground favourable for mining purposes.

"In the principal centres of population, the great attraction during the past year has been the Quartz Ledges.

"These ledges, during the early part of the year, almost entirely monopolized the attention of the miners; and the fluttering reports of which attracted, perhaps, 150 men

from abroad; the latter, however, have nearly all left the district. And notwithstanding the fact that no quartz claims as yet are actually giving returns to the owner, it would be difficult, if indeed possible, to find a man in the district who has not the most implicit confidence in the ultimate success of these mines. But I regret to say that there has been a complete suspension of work on all claims located on the Bonanza Lode; and I also deem it most unfortunate that the various companies located thereon do not unite in sinking a shaft, say 500 feet deep, cross-cutting the vein at different levels, thereby proving at once the value of this immense body of ore, and setting at rest a much vexed question among experts.

"Among the companies at present working, the Enterprise is, perhaps, taking the lead in the development of their mines. Having purchased Mr. Samuel Walker's location on Island Mountain, near Mosquito Creek, they employed some six or seven men during the last three months in taking out ore, and at present they have three or four hundred tons on their dump ready for hauling to the mill. They have also procured the use of ten stamps, with their appliances, from the British Columbia Milling and Mining Company, and have placed them in the old Lane and Kurtz shaft house on Williams Creek Meadows, where they have ample facilities for working the mill either by steam or water power. The mill is now ready for crushing ore, and will commence working as soon as there is sufficient snow for hauling the rock on sleighs.

"Mr. J. C. Beedy, of Lightning Creek, is also erecting a small quartz mill, having a capacity equal to five ordinary stamps, which will be ready for operation next month. The flattering result obtained from $1\frac{1}{2}$ tons of ore brought from his location on Burns' Mountain, and crushed at Richfield, has induced Mr. Beedy to erect this mill. At present, there are over 200 tons of rock ready for hauling to the mill, and some twelve men are employed in connection with this enterprise.

"The Forest Company, whose mine is situated on the mountain about one mile east of Richfield, have been working until quite recently. They have now suspended all operations, pending the result of negotiations with Mr. Edwin Russell, of San Francisco, (who recently visited this district) with a view of placing a mill, of the capacity of ten stamps, on the mine.

"The Proserpine Company are sinking on their claim, which is situated near the Forest Mine. This location is most favourably situated, being, it is supposed, where the Wilkinson and Montgomery Lodes join.

"The Quesnelle Quartz Mining Company, whose location is situated on Hixon Creek, about fifty miles from Quesnellemouth, in a north-east direction, have had six men employed during the greater portion of the summer. The quality of the ore taken from this mine is of a higher grade than any yet found in the district. There is now a quantity of the rock on its way to the mill at Richfield, from the crushing of which a favourable result is anticipated.

"The British Columbia Milling and Mining Company, after expending nearly \$100,000 in the purchasing and importation of a twenty-stamp mill, the grading and tunnelling of their mine, suddenly suspended all operations. This was, I understand, occasioned by the want of funds, and I trust is only temporary.

"In the development of our Quartz interests, it is to be regretted that there is not more united effort among the owners of adjoining locations in sinking a shaft to a depth that would thoroughly test the value of the lode, rather than expending their limited means, it may be said uselessly, on their various claims. In my next annual report I trust I shall be able to note an improvement in this particular.

"I have, etc.,

(Signed)

"JNO. BOWRON.

"Government Agent."

"FORKS OF QUESNELLE,

"October 22nd, 1878.

"SIR,—I have the honour herewith to forward my report and mining statistics for Keithley Division, Cariboo District; and although this year's report is no improvement on my last, yet the prospects are much better for the coming season, owing to the fact of good prospects being obtained on both Little and French Snowshoe Creeks (which are tributaries of Keithley Creek) and the outlook is good for extensive paying diggings on these heretofore neglected creeks.

"My report of the yield of gold is, in most cases, taken when on my annual rounds, from the owners of the claims. The white men, who I am sorry to say are the fewest in number, give all the required information most cheerfully, but the Chinese do not give me much information; a few of them understand what is wanted, and are apparently willing to tell the truth, but I believe the estimate is tolerably correct so far as it is possible to be obtained.

"I have also visited the Horse-fly country, and found about forty men there, one-half the number being white men. Nearly all of the Chinamen are in one claim, which is paying well. One company of white men are washing, and they also have good pay. There are two other companies of white men who are not washing yet, but have bottomed their shaft and found good prospects.

I have, etc.,

(Signed)

"W. STEPHENSON,

"Government Agent.

"To the Hon. the Minister of Mines."

CASSIAR.

The hopes entertained in the Mining Report of last year, with regard to the discovery by Mr. Walker of a new creek, have, unfortunately, not been realized.

It is, however, most satisfactory to be able to report the rich "strike" on Defot Creek. It is a small and short stream, but it yielded during the latter part of last summer gold to the value of about \$65,000. The greatest interest attaching to the discovery, however, is the probability of its being the cause of opening up what may prove to be the richest section of the most northern gold-field in the Province.

All mining work in this district is carried on under great and exceptionable difficulties; so much so, in fact, that the wonder is that the percentage of miners coming down "broke" is not greater than has hitherto been the case.

The second report of the Gold Commissioner, dated the 18th December, is decidedly encouraging, and will be read with interest. The importance of Mr. White's tunnel, on Thibert Creek, is very great; affording as it does employment to men at a season of the year when open mining is altogether out of the question.

The estimate made by the Gold Commissioner of the yield of gold is about \$120,000 higher for last year than for 1877. Judging by the Bank returns, it is probable that his estimate for 1877 was far too low, and that he is more approximately correct this year.

"LAKETON, CASSIAR,

"18th October, 1878.

"SIR,—I have the honour herewith to forward, for the information of the Government, the Mining Statistics for 1878, and also to report upon this district as follows:—

"Owing in a great measure to the failure of Walker's Creek, and to the scarcity of water in the different streams and gulches, etc., the season now at its close has not proved a prosperous one for miners or others at Cassiar.

"A great many, from reports circulated last autumn, were induced to visit Walker's Creek and that section of this district, and in almost every instance disappointment was the only result of their enterprise.

"The untoward circumstances alluded to having deprived some hundreds of miners of expected employment, several prospecting parties were organized, etc., with no results, however, save to find out to some extent where the gold was not.

"Many went down the Deloire and Liard Rivers, penetrating through that country for some hundreds of miles, and their reports, I regret, are not of a nature to induce others to visit the localities where they have been.

"The country towards the head waters of the Stickeen has also been more or less prospected, with a like unfavourable result.

"McDames Creek has but too truly verified my previous reports as to the spotted nature of its auriferous deposits, and has during the past season been chiefly sustained by yields from its First North Fork and some smaller creeks and gulches in that neighbourhood.

"Prospecting on the First North Fork, towards the summit, has been vigorously carried on for the last eighteen months, but with no definite result as yet, the ground proving difficult to work and the bed-rock to strike. The 'Empire' and 'White Grouse' companies' tunnels have been run in for a distance of 1,300 feet and 900 feet respectively.

"About the middle of last August an excitement was created in regard to bar diggings on the Upper Stickeen, distant about seventy miles from Telegraph Creek, and close to where the confluence of the Clap-an and the Stickeen takes place. The prospects obtained at first, however, did not last, and the transport, etc., of provisions to that locality being attended with great expense that discovery has ceased to be of interest to the mining community.

"Dease Creek being principally in the hands of the Chinese, it is very hard to estimate the returns from it this year. A few claims, worked by white men, have done well, and fair prospects are found in its hills, which are yet unworked for want of damage.

"Thibert Creek promised well in commencement of season, but later on the majority of the companies seemed to get off the lead. The great scarcity of water experienced this year also caused much loss upon that creek.

"The excitement caused by the discovery of Defot Creek still prevails; being a small creek, however, the majority of those visiting it after the first 'rush' had to content themselves with a look at what has proved to be, for its size, the richest creek yet found in the district. I have seen many nuggets that have been taken from it weighing about 10 ounces each, and one over 22 ounces; have heard that one, nine pounds in weight, has been there unearthed, but not having seen it I am unable to vouch for the correctness of that report. Some \$65,000 has been the total output from that creek since its discovery.

"Upon the divide from which Defot Creek heads, I have seen a great abundance of quartz, and the gold taken from Defot Creek, as you approach the summit, has an unwashed appearance, and in many instances seems to have been but recently delivered from the matrix, etc.

"Hopes are entertained of finding other paying creeks in that direction next summer, but it would be well if those thinking of visiting Cassiar in 1879 would bear in mind that there is anything but a certainty awaiting them; and also that McDames Creek, which has hitherto supported several hundred miners, is now almost 'worked out,' and that in consequence a large number of the 'old hands' will have to depend entirely upon the new section for employment in the coming spring.

"A brief sketch, shewing the distances which intervene between the relative centres, etc., of population in this extensive district, may not be out of place, and is given as follows:—Glenora, or Steamboat Landing, is the first arrived at after leaving Wrangel; then comes Telegraph Creek, 11 miles higher up on the Stickeen; both are forwarding depôts for all the merchandize shipped into Cassiar. From Telegraph Creek to head of Dease Lake, 70 odd miles, chained distance; thence to Laketon, 17 miles. Thiberts Creek from Laketon is 9 miles. From Laketon to Defot Creek, over 30 miles. From Laketon to Walker's Creek, over 120 miles; and from Laketon to McDames Creek town (Centreville), over 90 miles. In addition to the above are numerous smaller creeks and gulches, from 8 to 30 miles distant from McDames Creek; also are to be taken into consideration the bar diggings on the Stickeen, Deloire, and Liard Rivers.

"The population this year has been estimated at about 1,500, exclusive of Indians. Of that number, about one-half were scattered throughout the district in unsettled localities, prospecting, etc., many of them having left early this season.

"Very few of all who visited these mines this year have been successful, and I regret to add that the great majority, when leaving this fall, had to trust rather to Providence than their own resources to enable them to reach Victoria or the Sound, where they expected to obtain employment sufficient to supply them with the means of support during the winter.

"This season has been remarkable for the few cases of sickness that have occurred. There have been five deaths, of which two were accidental.

"Only one case of lunacy has come under my notice during the last three years at Cassiar, and that within the past week. The name of the party afflicted is T. O'Brien, a native, I understand, of New York, and a man who is well known throughout the mines in this country. The sympathizing inhabitants of Laketon got up a subscription towards having him taken to Wrangel, *en route* to Victoria or Portland, where proper medical attendance can be had, etc., and the circumstances being brought to my notice, as also the fact of his being entirely destitute, I advanced \$50, getting a voucher of receipt for same, on behalf of the Government.

"Criminal cases, for this year, as follows, viz.: Thos. Anderson, Indian, committed last March for the wilful murder of his klootchman, at Glenora; Ah Sue, Chinaman, committed in August last for the unlawful putting off, etc., of bogus or base gold dust. The former has since been in jail, the latter has been let out on bail, and both are awaiting trial.

"Owing to the general depression that prevailed in earlier part of season, packers have not done well, there being but little freight shipped during that time.

"The mines are not over well stocked with provisions, and the same rates are demanded as have been current during last two or three years.

"About 100 miners, it is supposed, will pass the winter upon the different mining creeks, and some 200 are expected to remain at Glenora.

"The steamer 'Lady of the Lake' is still plying between head of Dease Lake and Thiberts Creek. Weather continues moderate, and some mining (open) is still being carried on.

"Having made every effort towards procuring correct statements, I submit the following, viz.:—

Dease Creek	\$ 62,800
Thiberts Creek	65,600
McDames, and outlying gulches and creeks.....	101,320
Walkers Creek	35,000
Defot Creek.....	65,000
From localities not particularized	46,000
Allowance for inaccuracy of individual returns, as given by claim owners, who, in that respect, prove more reticent than ever.....	99,000
Amount likely to be taken out from date to 31st December, 1878.....	45,000
TOTAL	\$ 519,720

"I consider the total output for 1878, as above, to be under-estimated. The tabulated return for McDames Creek, etc., is far below what has been the yield from that section, and I feel confident that the given aggregate will be found to be within the number of thousands actually taken from the mines of Cassiar during the year 1878. When, however, the difference in population is considered, there will be found to have been a falling off from last year in the amount of gold produced, etc.

"I have, etc.,

(Signed)

"ARTHUR W. VOWELL,
"Gold Commissioner.

"To the Hon.

"The Provincial Secretary."

"CASSIAR, 18th December, 1878.

"SIR,

"Mr. White's tunnel claim, on Thiberts Creek, continues to pay richly, and has afforded employment up to the present to some 18 or 20 miners. Many claims have been taken up in its vicinity, and prospecting is being there actively carried on.

"Reports from the First North Fork, McDames Creek, are, I am happy in being able to report, encouraging. The Pocahontos company, on that gulch, has again got on good pay.

"About fifty-five men are wintering on McDames and outlying creeks; some sixty and upwards on Dease and Thiberts; and about seventy odd in neighbourhood of the Stickeen, exclusive of Indians.

"The season, up to the present, has been unusually mild; Dease Lake remained open and navigable until the 8th instant. We have already had more snow than fell during the entire winter of 1877-78.

"The health of the camp is good, and considering the season of the year the general aspect is favourable.

"I have, etc.,

(Signed)

"A. W. VOWELL,
"Gold Commissioner.

"The Hon. T. B. Humphreys,

"Provincial Secretary, Victoria."

KOOTENAY.

The report of the late Gold Commissioner of this district will be found below.

"KOOTENAY, 24th September, 1878.

"The Hon. the Minister of Mines.

"SIR,—In connection with the tabulated statement herewith forwarded, I have the honour to report, for the information of the Lieutenant-Governor, that the estimate of yield of gold in this district, for the season now passing, has been made after the most careful enquiry, and I think it may be regarded as a very full return.

"A large proportion of our sparse population, that follow mining, have been prospecting the past summer in different parts of the district, and I regret being obliged to state that in no case has even partial success rewarded their efforts.

"Tiede and West prospected on Finlay Creek, about forty miles from this place, in a north-west direction. Booth and Robier tried Toby and other creeks, at a greater distance, in the same direction. Powers, Lyons, Ridgway, and Moore worked on Perry Creek, and got no return. The latter four, with some five or six other men, spent some time on the Mouille and Weaver Creek, and every one of those prospectors returned empty handed. Some eight or nine white men have since left the country, and others are preparing to follow.

"The Chinese population, however, appear determined to take a firmer hold in this district; they have increased slightly in the last year. They have been making bolder efforts than heretofore to secure a large portion of the trade, and they promise an increase of their countrymen in the district of from forty to fifty next spring.

"The known quartz ledges in Kootenay are in perfect quiet. Some assays procured by H. S. Booth, in Montana, showed returns so small that no person here wants quartz at present.

"All of the above is respectfully submitted by your most obedient servant,

(Signed)

"CORNELIUS BOOTH,
"Gold Commissioner."

OKANAGAN.

With respect to the mines in the Okanagan section of the Yale District, no official report has been received; but the most reliable information obtainable is to the effect, that though the expectations formed by the miners last year have not been altogether realized, nor the yield of gold as large as there was every reason to anticipate, still a number of men found employment, with more or less success, both on Cherry and Mission Creeks. Some work, under the guidance of Mr. Torrance, was also done on the quartz ledge on Cherry Creek, referred to in the Mining Report of last year as containing silver.

This gentleman, representing capitalists in Montreal, has formed a favourable opinion of the silver deposits in this locality, and is most sanguine of success should the company see fit to continue their operations this summer.

KAMLOOPS.

A few Chinamen are still mining on the bars of the Tranquille River, and the Government Agent's estimate of the amount of gold obtained does not substantially vary from that of last year. The 12-mile creek on the North Thompson River is being prospected by a company of four white men. Should they succeed in finding paying ground it would add greatly to the importance and prosperity of this section of the Yale District.

"KAMLOOPS, 30th October, 1878.

"SIR,—Enclosed herewith you will find mining statistics for the year 1878, Kamloops Division of Yale.

"There is very little mining done in this part of the district. A few Chinese are still working on Tranquille Creek; it is difficult to find out from them what they are really making, not much I imagine. Most of the old miners are working in the hotels or cooking for the ranchers; those left, plead poverty, and it is hard work getting from them the amount of their mining licence. A few of them tried 12-mile creek, North

Thompson River, last summer, but failed to find satisfactory evidence of the existence of gold in paying quantities on that stream. Since then, however, a company of white men have started in, and having found what they considered a favourable location, commenced sinking a shaft; they have now reached a depth of over fifty feet. I am informed by the foreman, Mr. Guerin, an old Caribooite, that the indications are favourable, and that he and his partners are very sanguine of striking paying diggings when they reach bed-rock. If they should be fortunate enough to do so, there will be plenty of room for others to try their luck, as the creek is large and accessible.

"I have, etc.,
(Signed) "JOHN USSHER,
"Government Agent."

"The Deputy Provincial Secretary."

HOPE AND YALE.

The bars and benches of the Fraser River appear to be almost inexhaustible, and the Government Agent's report, which will be found below, is important and interesting.

"YALE, 11th October, 1878.

"SIR,—In pursuance of your request of the 8th July last, I beg to forward herewith my report, with mining statistics, for the Hope and Yale Divisions of the Yale District, for the year 1878, by which it will be seen that there is a considerable increase over my last year's returns.

"In my previous annual reports I have alluded to the extensive flats, bearing characteristic indications, which flank on each side of the Fraser River, and which undoubtedly contain rich deposits of gold. The Murphy Bros. have, in one instance, verified this opinion, by striking good paying diggings in the interior of Union Bar flat, paying to the land from eight to ten dollars per diem. The Chinese company, at Hill's Bar flat, are also working with satisfactory results, thereby proving, after the lapse of twenty years, the existence of valuable placer deposits, which only require a little pluck and energy to open up. To develop the mineral wealth of these divisions is an object of the highest importance; and it is trusted that sufficient nerve and energy will be forthcoming to attain this result.

"It is considered that, although so far little has been done in this direction, the time is not far distant when the quartz resources of these divisions will be stimulated and developed with greater energy.

* * * * *
"I have, etc.,
(Signed) "WILLIAM TEAGUE,
"Government Agent."

"To the Hon. the Minister of Mines."

SILVER.

Mr. Teague's reports, with regard to the Yale Creek Silver Mines, are encouraging. Amalgam, and rock in a crude state, have been forwarded to Cariboo to be tested and reported upon by the Government Assayer. Great hopes are entertained that these mines will be found sufficiently rich to be worked at a profit; it is unnecessary to dilate on the advantages which would result to the Province should these hopes be realized. It is regretted that the results obtained by the Government Assayer, from the samples forwarded, cannot be received in time for publication in this report.

Prospecting on the Hope Silver Mines is not at present being carried on; it is probable, however, that renewed activity will be shown in this direction should the return made from the Yale Creek rock be even fairly favourable.

"YALE, 11th October, 1878.

"SIR,— * * * * *

"I am informed that, on account of the late good reports and prospects, local capital is forthcoming for the development of a silver-bearing ledge which was discovered a short time since, about four miles back of Yale, on Yale Creek, of which tests have

just been made from two locations with most satisfactory results. From the Yale company's claim, half a pound of rock was worked by Mr. Sleight, a gentleman who has had considerable experience in treating and working the silver ores of the Ontario Silver Mine, Utah, and who tested it by the amalgamation process; the result was indeed surprising, giving a return of about two ounces of pure silver. The second test of one pound is in course of preparation, but not completed; I have seen the pulp, which shows rich in amalgam. The lode is apparently well defined, from four to six feet in width. The ore is chiefly a sulphuret, and embedded in talc formation, with indications of yielding largely. Wood and water can be easily supplied, and in sufficient quantities as may be required, at a very trifling cost, for milling and dressing purposes; the ore can therefore be returned at a very small cost.

"The season has been an exciting one with regard to quartz resources. During the summer months both white men and Indians have been searching the creeks and mountains with unabated activity, looking after argentiferous quartz; and in many instances fine specimens of rock—impregnated with arsenical and copper pyrites, galena, copper, with portions of silver and gold—of a most promising character have been taken from the out-croppings of various ledges found in most favourable localities; and in some instances favourable reports and assays have been received by me of specimens sent to Cornwall. Returns from there show a yield of 10 oza. of silver to 2,000 lbs. from a piece of rock taken from the out-croppings of a ledge on Thompson River, near the 100 mile post; this is a promising lode, and is to be vigorously wrought upon during the winter months, and samples obtained at a greater depth will be transmitted for inspection, next spring, to members of the Cornwall and Devon Mining Association.

"Eighteen applications have been received during the season for mineral lands, which I hope will tend towards the opening up and working the mineral deposits of the district.

"The Hope silver mines are still in abeyance.

"To the Hon. the Minister of Mines."

(Signed)

"I have, etc.,

"WILLIAM TEAGUE,
"Government Agent."

"YALE, 20th February, 1879.

"SIR,—The Yale Creek Silver Mines are situated in a northerly direction, in a basin form, on Yale Creek, a distance of about three miles from Yale. They are reached by a circuitous trail, after an hour's walk over a good grade affording every facility of easily making a good road for the transit of machinery when necessarily required for the mines, which can be laid thereat without any obstacles of advance, and at a very trifling cost. The vein matter is embedded in mica schist, and the overlaying strata is very segregated, tilted, and twisted in all manner of ways, evidently by the force of some powerful agencies. The supply of wood and water seems to be unlimited, and the surrounding hills are clothed with a magnificent forest of pine adapted for every useful mining purpose, which are important considerations for the concentration of the ores, as low grade ores could be inexpensively worked, and possibly under skilful management be made remunerative; these are privileges that should not be overlooked, and are often indicators of success in mining affairs. It may be said that mining enterprises have reached such a pass that many men are afraid with limited means of taking an active part in any mining affair after the recent vacillations; but, nevertheless, there is 'balm in Gilead,' although at present it is up hill work to travel to develop the mineral resources of the Province which are yet in embryo; but the day will come when the cloud with its silver lining will shine forth with its resplendent lustre. From time immemorial it has been the essential qualities of the miner to explore or prospect the surface of a country for minerals; therefore, without spirit, energy, perseverance, hope, and practical knowledge in mining, mining enterprises would soon be a thing of the past—retarding the progress of civilization, and sinking the achievements of modern sciences, without the use of metals and their mode of application, into oblivion.

"The first company to take up the gauntlet is the 'Yale Creek Silver Mining Co.,' who, with an enterprising spirit, have erected a cabin and a smithery, with a company of men at work who are making fair progress in driving their tunnel to cross-cut the lode. The indications being met with in the explorations are of a highly encouraging and hopeful character; the branches of ore already met with increase in size as distance

is attained, carrying a combination of oxidized or 'Keenly' quartz, antimony, and sulphurets of iron. The ledges are embedded in a most congenial strata, which is marked with most favourable characteristics for rich deposits of ore at deeper levels.

"The adjoining location, on the east, is the 'Cambie Silver Mining Company,' possessing every favourable geological feature to the eye of being a remunerative piece of property, the company being about to commence their operations by letting a contract for driving a tunnel, an estimated distance of 60 feet, through a favourable stratum of talc schist, to cut the lode.

"The 'California Company' adjoins the 'Cambie' and the Yale Creek companies on the south, and are preparing to follow in similar course to prospect their ground, of which they are sanguine of good results.

"There are two other locations, but the parties have not yet matured their plans of working.

"The assays made from the different companies' locations have resulted with most satisfactory returns, and it is hopeful that we are upon the eve of the turning point of success, and that the promising indications met with at the Yale Creek Mines will successfully open out with good results, turning the tide in our mining resources which have been hitherto so unfortunately mismanaged.

"I have, etc.,

(Signed)

"WILLIAM TEAGUE,
"Government Agent."

"To the Hon. the Minister of Mines."

"YALE, 15th March, 1879.

"SIR,—Since my report to you referring to the Yale Creek Silver Mines, I have the honour to forward herewith, for your information and inspection, 9½ ounces of silver amalgam, the yield of 14½ lbs. of rock taken from the ledge, which was an average sample for a true working test, made by Mr. John Sleight, by the amalgamation process, who is an experienced hand in treating ores, and who has taken since his sojourn among us indefatigable pains in testing and working rock, free of charges, for the benefit of parties who interest themselves in exploring the country for mineral quartz. The specimens of rock accompanying are fair average samples of the rock tested. The lode appears embedded and running parallel and in conjunction with talcose and serpentine rocks, or stratum, by east-north-east and west-south-west direction. The reason the bullion appears in so many pieces, is on account of not having a sufficient receptacle for holding and working the pulp all at one time, therefore Mr. Sleight was obliged to work it in such quantities as his appliances would permit. Be pleased to send me the number of ounces after the amalgam is retorted.

"I have, etc.,

(Signed)

"WILLIAM TEAGUE,
"Government Agent."

"To the Hon. the Minister of Mines."

COAL.

It is pleasant to read the able and satisfactory report of the Inspector of Mines.

In spite of the disadvantages of cheap coal, and the import duty, at San Francisco, the output has steadily, and to an appreciable extent, increased; so much so in fact that the production of last year more than doubled that of 1874.

The following Table shows the total output of each year, from 1874 to 1878 inclusive:—

Year.	No. of tons.
1874	81,000
1875	110,000
1876	139,000
1877	154,000
1878	171,000

"NANAIMO, B. C., 13th February, 1879.

"SIR,—I have the honour to enclose my report as Inspector of Mines. Annexed thereto are returns from the Vancouver Coal Co., and from Messrs. Dunsmuir, Diggle, & Co. I have not received returns from the other mines, as they have been doing hardly anything during the past year.

"I have, etc.,

(Signed)

"EDWD. GAWLER PRIOR,

"Inspector of Mines.

"The Hon. T. B. Humphreys,
"Minister of Mines."

"INSPECTOR OF MINES' OFFICE,

"Nanaimo, 5th February, 1879.

"SIR,—I have the honour to transmit my annual report, in conformity with Section 43, 'Coal Mines Regulation Act, 1877.'

"The Coal Mines of Vancouver Island have, during the year 1878, passed through a period of unprecedented discouragement; the prices at San Francisco, the chief foreign market for these coals, having reached the lowest rate yet attained; indeed, while subjected to so much depression, only the most able commercial management, and the utmost economy in carrying on the works, have saved this important industry from entire cessation.

"Under the pressure of these circumstances, the Baynes Sound and Harewood Mines have ceased operations; but as some counterbalance to this falling off, the South Wellington Co. have been constructing preparatory works upon a considerable scale.

"The coal mines which have been in active operation during the past year, viz.: the Vancouver Coal Company's Douglas, Chase River, and Fitzwilliam Mines; and the Wellington Company's Mine, have, however, shown satisfactory progress, having produced upwards of 171,000 tons of coal during the year 1878, against 154,000 tons the total output of four proprietories carrying on work in 1877, being an increase of 17,000 tons for 1878; and the greater excess of 32,000 tons over the total output of 1876.

"In view of the extremely low rates obtained for coal in San Francisco throughout the past year, it is gratifying to find that the shipments of coal to that port have not diminished, but largely increased, thus manifesting a praiseworthy determination on the part of the managers of these mines not to be beaten out of their accustomed channels of trade.

"During the year 1878 over 164,000 tons of coal, the produce of Vancouver Island, have been shipped to San Francisco and Southern Ports of California; Portland, Oregon; Seattle, Washington Territory (gas coal); Ounalaska, Alaska; Mexican Ports, Hawaiian Islands, and Hong-Kong; vessels belonging to various navies; and to the steamships of the several mail services.

"The foreign shipments of coal for 1878, show the remarkable increase of nearly 50,000 tons over the foreign shipments of 1877.

"Undoubtedly the unfortunate stoppage of work at the Wellington Colliery lessened the total output and shipments of coal for the year 1877, but, on the other hand, the idleness of both the Vancouver Coal Company's mines and the Wellington Company's mine during portions of several months of the dullest times of 1878 equalize the actual working time of the mines in the years under comparison, and so justify the deduction that the coal industry of this Province is in a promising state of development and progress.

"The sales of coal for home consumption are small in proportion to the quantities exported. These sales for 1878 were 1,655 tons more than those of 1877.

"I am happy to state that only three fatal accidents have occurred in or about these coal mines during the past year. No. 1: On June 28th, a Chinaman, named Ah Shan, was killed in the Chase River Mine by being crushed between the box and the 'rib.' From the evidence given at the inquest, it appeared that the deceased was 'hanging on' at the bottom of a self-acting incline, and instead of fastening the rope to the box by means of the proper iron hook provided for that purpose, he made a loop of the rope, and fastened it with a small stick. The rope becoming suddenly slack the stick dropped out and the box ran back on him and crushed him against the coal. The man was entirely to blame himself, as he was warned not to fasten the rope in the manner he did.

"No. 2: On September 2nd, a miner, named William Jeffery, was killed in the Douglas Mine by a large piece of coal falling on him. The unfortunate man was lying under the coal, having undermined it, and was still engaged in that operation when the mass suddenly came away, and falling on him, crushed him to death. The deceased was a very steady, experienced miner, and the evidence given at the inquest went to shew that the accident occurred simply from the deceased trusting too much to the natural adhesion of the coal.

"I am sorry to say that a large proportion of both fatal and non-fatal accidents which occur in these mines arise from the fact of men not setting sufficient "spraggs" or props. From personal observation, I am able to state that plenty of timber is supplied to them for that purpose, but very often, if a prop is not close at hand, a man will run the risk of getting hurt to save himself trouble. Another reason why this class of accident is more frequent than any other is, that many men engaged in coal mining in this Province are not experienced miners, but men who have been accustomed to other branches of labour. To be able to secure some places properly with timber, a man must be an experienced miner.

"No. 3: On December 6th, a Chinaman, named Kong Sing, was killed on an incline on the Wellington Colliery tramway. From the evidence taken at the Coroner's inquest it seems that the deceased was a brakesman in charge of the 'run,' and that at the time he met his death he was riding on the front waggon going up the incline. When near the top, the 'run' was thrown off by an iron rail which was laid across the track. The Chinaman was pitched off the front waggon, and three or four waggons passing over him he was so fearfully mangled that he died almost immediately. The verdict returned by the Coroner's jury was to the effect that the rail was placed there purposely, by some person or persons unknown. I was present at the inquest, and it was proved beyond doubt that the rail could not have got there by accident. As yet no clue to the perpetrator of this dastardly act has been found.

"In regard to this incline I would beg to state that it is my opinion that, sooner or later, a very serious accident will occur, as many women and children are in the habit of riding on the waggons running on this incline, although constantly warned by the colliery officials against doing so. Printed notices are also posted up in conspicuous places, warning persons against riding on the waggons, but they do not seem to be heeded. This incline is 1,000 yards long, and has a rise of about 1 in 18, so that if the rope was to break when women or children were on the 'run' they would stand but a slight chance of escaping with their lives.

"There have been seven non-fatal accidents during the past year, causing serious injury to seven persons. Three of these were caused by falls of coal and rock, one by being crushed between boxes, one by a blasting shot, and two by explosions of fire-damp.

"One of the two men injured by explosions of gas was a fireman, whose duty it was to inspect the mine before the miners went into their 'stalls,' etc. On the morning of the accident, as his safety lamp with which he is provided would not burn well, he proceeded on his round of inspection with a naked light in one hand and his safety lamp in the other. On going up a heading, a quantity of fire-damp, which had collected during the night owing to some brattice having been knocked down, ignited at his naked light and burnt him very severely. Fortunately there was not a sufficient quantity of pure air mixed with the carburetted hydrogen gas to make it extremely explosive, or the man could hardly have escaped with his life. As he received a very severe lesson, I did not deem it advisable to take any proceedings against him.

"The ventilation in the several mines has been much improved during the past year.

"In the Wellington Colliery there was an average of 40,000 cubic feet of air per minute passing in the main return, and this quantity was well distributed. In this mine more fire-damp has been met with in the lower workings than was encountered to the rise, which is quite to be expected; but with ordinary care, combined with the good ventilation that is there, no danger need be anticipated.

"In the Chase River Mine I found an average of 35,000 cubic feet of air running per minute, which was well conducted round the faces. The above-mentioned amount of air, viz., 35,000 cubic feet per minute, can be largely increased, with very little trouble, if at any time it is needed. In this mine a good deal of annoyance is caused to the miners by sulphuretted hydrogen gas, which is given off in various places. This gas affects them most when undermining and shearing the coal, at which time it

gets into the eyes and causes great inflammation and temporary blindness. No ordinary amount of wind passing will keep this gas from the miner, as his work keeps him so very close to the coal.

"There is not such a marked improvement in the ventilation of the Douglas Mine as in the others.

"During the past year a great deal of work has been done in connection with the South Wellington Colliery. A railway over three miles in length has been built, running from the mine, which is situated between Nanaimo and Wellington, through the Vancouver Coal Company's land, to the sea at Departure Bay, where a large loading pier has been erected. A pair of horizontal engines and two large boilers have been placed in position at the pit, which is sunk to the coal, and another shaft has been sunk down to a depth of 150 feet, which will be used as an upcast. Very little work has been done in the coal as yet, owing to some unfortunate trouble connected with the ownership, but active operations in this branch may soon be expected.

"The Harewood Colliery and the Baynes Sound Colliery have not been putting out any coal, having, as before stated, suspended operations for some time at least.

"All work at the Fitzwilliam Mine has now been stopped with the exception of pumping.

"The Union Coal Company did some prospecting on their estate at Comox during the summer, but no coal was taken out.

"Several bore-holes have been put down by the various Coal Companies; notably, one by the Vancouver Coal Company to a depth of 746 feet by means of their diamond drill; one by Messrs. Dunsmuir, Diggle & Co., to a depth of 500 feet; one by the Baynes Sound Coal Co., to a depth of 375 feet; and one on the Westwood Estate, to a depth of 290 feet.

"I have the honour to give a list of those persons to whom 'Certificates of Service' have been issued in accordance with section 26, 'Coal Mines' Regulation Act, 1877': T. A. Bulkley, John Bryden, James Dunsmuir, Thomas Cairns, John Dick, Archibald Dick, James Gillespie, E. G. Prior.

"The following is a statement showing the amount of coal raised and the number of fatal and non-fatal accidents that have occurred during the last three years:—

Year.	Tons raised.	Fatal accidents.	Non-fatal accidents.	Tons raised per life lost.
1876	139,191	4	9	84,797
1877	154,052	5	14	30,810
1878	170,496	3	7	56,832

"From the above figures you will perceive that in the past year there has been about eighty-four per cent. more coal brought to the surface for each life lost than there was during the preceding year.

"This, I think you must consider, is a very satisfactory result for the year 1878.

"Annexed are the usual colliery returns from those mines that have been working.

"I have, etc.,

(Signed)

"EDWARD GAWLER PRIOR.
"Government Inspector of Mines"

Hon. T. B. Humphreys,
Minister of Mines, &c., &c., &c.

NANAIMO COLLIERIES.

Output of Coal for 12 months, ending 31st Dec., 1878.	No. of tons sold for home consumption.	No. of tons sold for exportation.	No. of tons on hand, January 1st, 1878.	No. of tons unsold, including coal in stock, Jan. 1, 1879.
83,135 tons. Dullness of trade was the cause of the Company's mines not working part of several months in the year,—hence the falling off in output.	14,729 tons.	81,699 tons.	19,670 tons, 3 cwt.	5,277 tons.
Number of hands employed.			Wages per day.	
Whites— Men, 287 Boys, 20	Chinese, 91	Indians, 25	Whites, \$1 75 to \$3 75	Chinese, \$1 to \$1 25 Indians, \$1 to \$1 50
Total hands employed, 373.			Miners' earnings per day, \$2 50 to \$5 00.	

NOTE.—The number of hands employed does not include Indians or Chinamen working for miners, and paid by them.

Names of seams or pits..... Douglas, Chase River, and Fitzwilliam.

Value of plant..... \$120,000.

Description of seams, tunnels, levels, shafts, etc., and number of same. *Douglas Mine*, Nanaimo, worked by slope; there are six levels, three of which are in operation. The coal produced is of excellent quality, and in the lowest level is about 5½ to 6 feet thick. The Douglas coal is first-class for steaming and gas making. The old Douglas Pit is now used as an up-cast shaft.

New Douglas Mine is situated near Chase River, about 1½ miles from the Douglas Pit. The mine is being opened up by slope with three north and three south levels. The seam extends from 4½ to 9 feet in thickness of clean coal of first-class quality for steam and household purposes. The New Douglas coal is also known as "Chase River coal," and is held in the highest estimation in the domestic and foreign markets.

Extension of Works—For some time past the section of the Company's land to the south of Chase River has been under exploration, and by means of the Company's diamond boring machine, etc., the seam of coal has been proved to extend under a large area of the Company's property. Works preliminary to opening up the seam are in progress.

Fitzwilliam Mine, on Newcastle Island, has been worked by slope of 800 yards. Fitzwilliam coal is a superior article for household use. This mine was idle nine months of last year owing to slackness of trade.

Newcastle Mine ; not in operation; 240 yards by slope, on Newcastle Island.

Chase River Mine ; 290 feet deep by shaft ; not in operation.

Description and length of tram-way, plant, etc.

The Company's Railway is a little more than two miles in length, constructed of double-headed steel rails, 52 lbs. to the yard, laid on chairs, bolted to wooden ties. The railway extends from the New Douglas Mine to the Company's loading pier, with sidings for shunting, and branches to the Douglas Pit, etc.

The Company have powerful winding engines, steam pumps, etc., fifty 5½-ton coal cars, fifty 3½-ton cars, and three locomotives. There are facilities at the Company's wharves for delivering one thousand five hundred (1,500) tons of coal per day. The Company have accommodation at their wharves for vessels of the capacity of the "Baring Brothers," carrying 3,300 tons of coal, and drawing 27 feet of water.

(Signed)

M. BATH

WELLINGTON COLLIERY.

Output of Coal for 13 months ending 31st Dec., 1878.	No. of tons sold for home consumption.	No. of tons sold for exportation.	No. of tons on hand 1st January, 1878.	No. of tons unsold, including Coal in stock, Jan. 1st, 1879
88,361 tons 11 cwt.	11,237 tons 10 cwt.	82,983 tons.	6,794 tons 13 cwt.	935 tons 14 cwt.

No. of hands employed.			Wages per day.		
Whites— Men, 165 Boys, none.	Chinese, 129	Indians, none.	Whites, \$2 to \$2 50	Chinese, \$1 to \$1 25	Indians, —
Total hands employed, 294.			Miners' earnings per day, from \$3 50 to \$5.		

Name of seams or pits..... Wellington Seam.

Value of plant.....

Description of seams, tunnels, levels, shafts, etc., and number of same..... Slope.

Description and length of tram-way, plant, etc..... 3½ miles railway.

*SOUTH WELLINGTON COLLIERY.

Output of Coal for 12 months ending 31st Dec., 1878.	No. of tons sold for home consumption.	No. of tons sold for exportation.	No. of tons on hand, 1st January, 1878.	No. of tons unsold, including coal in stock, Jan. 1, 1879.
350 tons.	200 tons.	None.	None.	150 tons.

No. of hands employed.			Wages per day.		
Whites, 20 :— Men, 17 Boys, 3	Chinese, 10	Indians, none.	Whites, —.	Chinese, —.	Indians, —.
Total hands employed, 30.			Miners wages per day, —.		

Name of seams or pits..... Wellington seam at South Wellington Pit.

Value of plant..... \$60,000.

Description of seams, tunnels, levels, shafts, etc., and number of same.

Wellington seam is all that is worked in this property at present. Shaft is 162 feet deep, vertical, to coal, which is 11 feet thick. There is only one level driven, nearly due south, a distance of 300 feet from near end of this level. Shaft, which was intended for air-shaft, is sunk about 150 feet deep; exact course and distance from end of said level to where air-shaft would come through is S., 2° W., magnetic; distance, 162 feet. From above description it will be seen there are two shafts, one of which cuts the vein, the other supposed to be near vein.

Description and length of tramway, plant, etc.

Tramway and plant in unfinished state. Value of same I have included in value of plant above.

(Signed)

R. WINGATE.

Agent.

*This Return was received too late to be included in the Report of the Inspector of Mines.

SEVENTH ANNUAL REPORT



OF THE

MINISTER OF MINES,

FOR THE

YEAR ENDING 31ST DECEMBER,

1880,

BEING AN ACCOUNT OF

MINING OPERATIONS FOR GOLD, COAL, &C.

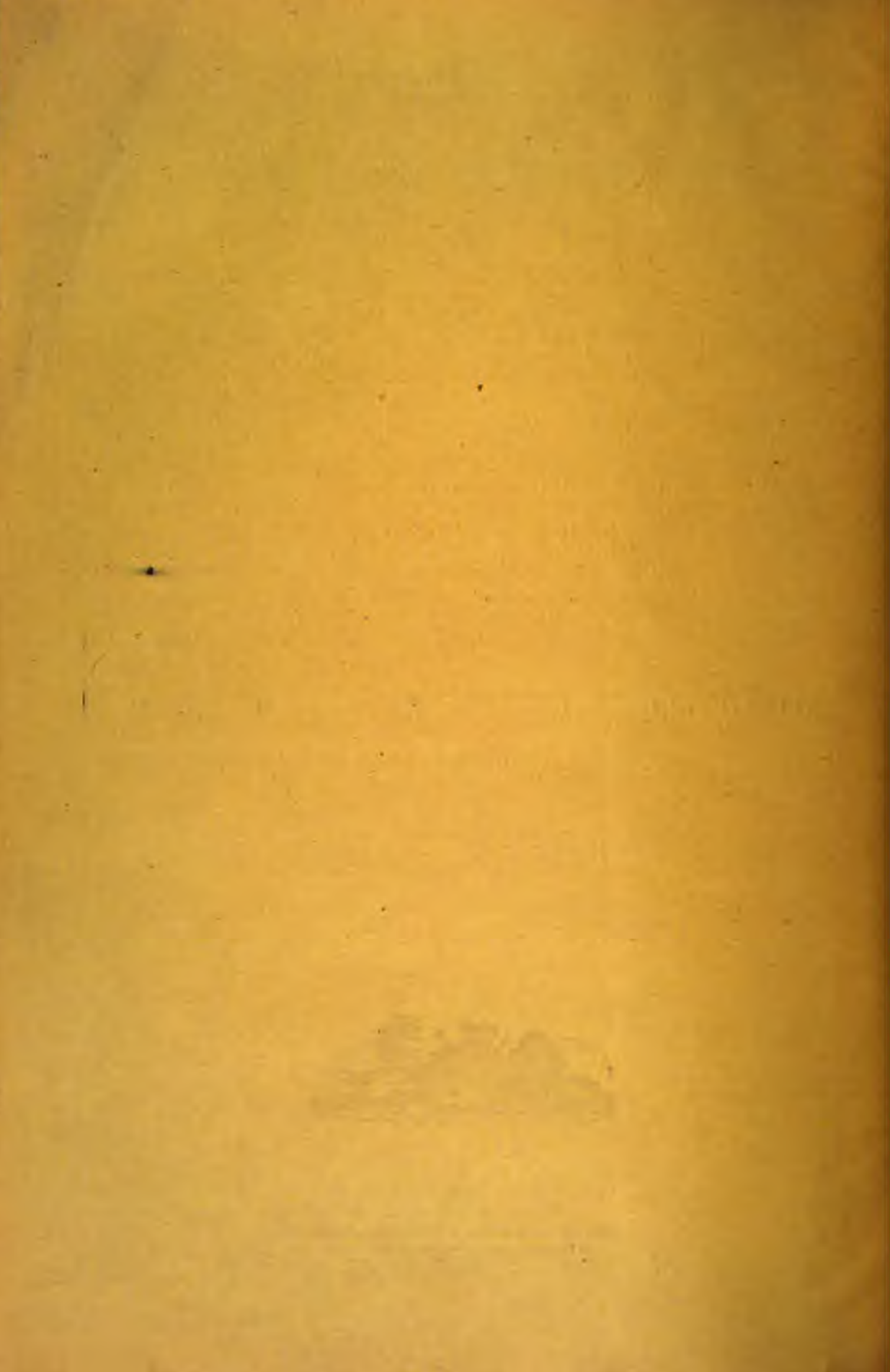
IN THE PROVINCE OF

BRITISH COLUMBIA.

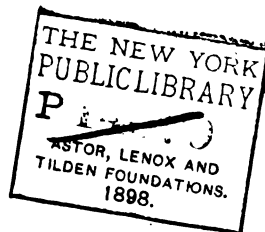


VICTORIA : Printed by RICHARD WOLFENDEN, Government Printer
at the Government Printing Office, James' Bay.
1881.

VHCA



SEVENTH ANNUAL REPORT
OF THE
MINISTER OF MINES,
FOR THE
YEAR ENDING 31ST DECEMBER,
1880,
BEING AN ACCOUNT OF
MINING OPERATIONS FOR GOLD, COAL, &c.
IN THE PROVINCE OF
BRITISH COLUMBIA.



VICTORIA : Printed by RICHARD WOLFENDEN, Government Printer
at the Government Printing Office, James' Bay

1881.

ROYAL GEO. B.C.

Name	Location		Description of Machinery.		Value of Gold per ounce.	Estimated value of yield for the year.	Total.
	Shaft.	Tunnel.	Water Wheels.	Steam Engines			
Barkerville							
Willie	5		1		\$ 16 00	\$ 79,000	
Conk	3	3	1			24,700	
Group					15 75	9,800	
Antle	1				16 50	16,500	
Cunn					16 00	6,200	
Lowh	2		1	1	17 00	21,300	
Moeq					17 25	10,000	
Canas	1				16 00	500	
Hard					17 00	2,500	
Jack	4		4		16 25	16,100	
Stout	2		1		17 00	8,400	
Sund						24,000	
Lightning							219,000
Oault		1			17 50	200	
Peter					17 00	900	
New							
Barry							
Burn							

PROVINCE OF BRITISH COLUMBIA.

TABLE

Shewing the actually known and estimated yield of gold; the number of Miners employed; and their average earnings per man, per year, from 1858 to 1880.

Year.	Amount actually known to have been exported by Banks, &c.	Add one-third more, estimate of gold carried away in private hands.	Total.	Number of Miners employed.	Average yearly earnings per man.
1858 (6 months).	} \$ 390,265	\$ 130,088	\$ 520,353	3,000	\$ 173
1859	1,211,304	403,768	1,615,072	4,000	403
1860	1,671,410	557,133	2,228,543	4,400	506
1861	1,999,589	666,529	2,666,118	4,200	634
1862	} 3,184,700	1,061,566	4,246,266	4,100	517
1863				4,400	482
1864	2,801,888	933,962	3,735,850	4,400	849
1865	2,618,404	872,801	3,491,205	4,294	813
1866	1,996,580	665,526	2,662,106	2,982	893
1867	1,860,651	620,217	2,480,868	3,044	814
1868	1,779,729	593,243	2,372,972	2,390	992
1869	1,331,234	443,744	1,774,978	2,369	749
1870	1,002,717	334,239	1,336,956	2,348	569
1871	1,349,580	449,860	1,799,440	2,450	734
1872	1,208,229	402,743	1,610,972	2,400	671
1873	979,312	326,437	1,305,749	2,300	567
1874	1,383,464	461,154	1,844,618	2,868	643
1875	1,856,178	618,726	2,474,904	2,024	1,222
1876	1,339,986	446,662	1,786,648	2,282	783
1877	1,206,136	402,045	1,608,182	1,960	820
1878	1,062,670	1 fifth 212,534	1,275,204	1,883	677
1879	1,075,049	„ 215,009	1,290,058	2,124	607
1880	844,856	„ 168,971	1,013,827	1,955	518
			\$ 45,140,889		

REPORT

OF THE

MINISTER OF MINES

FOR THE YEAR 1880.

To His Honour ALBERT NORTON RICHARDS, Lieutenant-Governor of the Province of British Columbia.

MAY IT PLEASE YOUR EXCELLENCY,—

I have the honour herewith to present to your Honour the Seventh Report of the Mining industries of the Province.

All of which is respectfully submitted.

I have the honour to be,
Your Honour's obedient servant,

T. B. HUMPHREYS,
Provincial Secretary and Minister of Mines.

REPORT.

GOLD.

The amounts actually exported by the Banks during 1880 are as follow:—

Bank of British Columbia.....	\$340,741 09
Bank of British North America.....	256,860 30
Garesche, Green & Co.....	247,255 05

Total.....\$844,856 44

It is most difficult to estimate the sum which should be added to this in order to cover private export. Retaining one-fifth, as in the Mining Reports for 1878-79, gives the total of \$1,013,827 as the probable gold yield for 1880.

CARIBOO.

This remarkable district, which—so far as the production of gold is concerned—has been the main-stay of the Province for twenty years, shows no signs of exhaustion; on the contrary, the yield for the last three years has steadily increased, and the Government Agent anticipates “a much larger return for next year's work.” In all probability he will be justified by the result.

The return for the past season, estimated—including Omineca—at \$600,000, is the more satisfactory inasmuch as it has been gained in spite of the temporary failure of two most important enterprises, probably the two most important yet started in the District. The Waverley Hydraulic Mining Company, after going to great expense in bringing the necessary water upon their ground, unfortunately commenced operations in the wrong place, and failing to find the outlet of the deep channel, the work of the past season, other of course than the bringing on the water, was thrown away. This however has not in any way lessened the great confidence which is felt, particularly by miners who have worked on Grouse Creek, in the ultimate success of the Waverley Company. The other enterprise referred to—The Cariboo Lake Ditch and Mining Company—has been practically in abeyance. More extended surveys demonstrated that water could not be taken from Cariboo Lake and down the North Fork of Quesnelle except at an enormous cost, and that scheme was therefore abandoned. An easier line at a lower level, taking the water out of the river, has now been found, and work on the ditch will be vigorously prosecuted next season. In this undertaking the ditch itself is almost the only element of uncertainty,—breaks, repairs, &c.—the ground which it will cover having been known to be rich for many years, in fact ever since its first discovery in 1860.

An era of hydraulic mining has now fairly commenced in Cariboo, and will probably extend to other districts. Every successful “wash-up” is a stimulus to engage in fresh ventures of this nature, and it may be predicted with some confidence that many of the benches of the Fraser between the mouth of Cottonwood and Lytton, a distance of over 250 miles, will be worked by hydraulic power at no distant date.

The discovery of comparatively rich ground on the upper benches of the Fraser and Quesnelle Rivers, in the vicinity of their junction, indicates the immense area of ground not yet thoroughly tested, and will greatly encourage bench-prospecting.

In the Keithley division the return from Snowshoe Creek is again “especially favourable.” The yield for the past three seasons has been estimated as follows:—1878, \$9,000; 1879, \$25,000; 1880, \$44,000. Considering that this creek has been known, prospected, and more or less worked, for twenty years, it furnishes a wonderful example of the care with which Nature hides her riches, and a hint to the miner not to be easily discouraged in the pursuit of them.

Nothing worth speaking of has been attempted during the past year towards the development of the quartz resources of the district, but notwithstanding this the future looks bright, a feeling of confidence prevails, and Cariboo may well feel proud of its speedy recovery from the depression, and decreased yield, caused by the undue quartz excitement of 1877-78.

“RICHFIELD, 23rd November, 1880.

“SIR,—I have the honour to enclose tabular forms showing approximately the result of mining operations in this district for the past season.

“I am pleased to be enabled to report an increase of gold over the preceding year. This is especially gratifying, considering that a number of our producers have been engaged the whole season preparing claims for working by hydraulic process.

“These, in the near future, are certain to add their quota to the general output, and bring renewed prosperity to the district. I speak thus confidently, having the assurance that all these claims have been thoroughly prospected before their owners would expend large sums bringing in long ditches, purchasing costly iron pipe and other material necessary for the successful working of such claims.

“The season has not been without its complement of drawbacks. A number of companies which expected to have taken out pay were prevented from various causes.

“The Central Company of Jack of Clubs Creek had expensive machinery to put in position. The Waverley Hydraulic Company, of Grouse Creek, failed to find the outlet of their ground. The Hardscrabble Hydraulic Company have not yet reached bed-rock, consequently did not get much pay. A Hydraulic Company was organized to operate on Sugar Creek, and a ditch made preparatory to commencing active operations next spring. The North Fork Company of the North Fork of Quesnelle River, after spending a considerable sum on surveys, were obliged to abandon the original plan of diverting the water from the lake in consequence of the difficulties to be overcome, consisting of rocky points and precipitous bluffs, around which a flume would have to be suspended for several miles in length. Subsequently a more feasible route was found at a lower

elevation, by which the water from the river can be made available, and which will materially lessen the estimated cost. This discovery, however, was made too late to commence the construction of the ditch during the present season, therefore but little progress has been made in this promising undertaking.

"Many other companies in different parts of the district might be mentioned as having been engaged during the season in what is known as "dead work."

"It will, therefore, be readily seen that a much less number than in former years were actual producers, as there has not been any material increase in our population.

"Scarcity of water will be the only drawback to successful hydraulic mining on many of the old creeks.

"Willow River and its tributaries offer special inducements for this kind of mining, on account of its lower altitude, its immense gravel banks, and the facilities for getting water upon them.

"As an illustration of the advantages of hydraulic mining, when possible, over the old way of drifting, an instance occurred this season. Mr. I. B. Nason purchased the Boneta claim, where the owner had drifted about for years, barely making wages. This season, under hydraulic pressure, five men working the claim cleaned up \$7,000 in about three months.

"Very important discoveries were made during the season on the high benches along the Fraser and Quesnelle rivers. Heretofore mining operations on these streams have been entirely carried on by Chinese, who principally restricted their operations to rocking on the bars during low water. In consequence of the recent discoveries of richer ground on the higher benches, quite an impetus has been given to this kind of mining in that portion of the district. Some fifty claims, including a half-dozen of white companies, have been recorded, and it is reported that some of the Chinese are taking out as much as \$50 per day with a rocker. Similar discoveries were made on Quesnelle river, and I firmly believe that a thousand Chinamen and a good many white men will find profitable employment there during the coming season.

"Messrs. Barlow, Duhig & Co. located a claim about six miles above the mouth of Quesnelle, and diverted the water from Four-Mile Creek, using it to ground-slucice with. The frost prevented their cleaning up their ground-slucice, but they got sufficient out of their sluice-boxes to justify the belief that they have a valuable claim.

"Quartz mining has been entirely suspended, with the exception of a small amount of work done by the Enterprise Company upon their Island Mountain location.

"Mr. James Reid, of Quesnellemouth, has purchased the Beedy Quartz Mine on Burns' Mountain, and has advertised for tenders for running a tunnel to tap the ledge at a greater depth than heretofore reached.

"The following statement from the Government Assayer at Barkerville gives the relative amounts melted for the years 1879 and 1880.

"It is gratifying to note that the amount assayed in 1880 reaches nearly \$40,000 over the preceding year.

For six months ending June 30th, 1879.....	\$ 58,295 81
For six months ending December 31st, 1879.....	143,919 55
	<hr/>
	\$202,215 36
	<hr/>
1880—For six months ending June 30th	\$51,141 13
„ —To period ending November 15th	170,412 93
Estimate for remainder of year based on corresponding period, 1879.	18,000 00
	<hr/>
	\$239,554 06
1879.....	202,215 36
	<hr/>
1880—Increase	\$37,338 70

"I have not been able to obtain reliable information as to the mining results in Omineca, but learn that the amount realized will fully equal that of last year. Including Omineca, I place the total yield for the year 1880 at \$600,000, or \$60,000 over that of last year, which I account for as follows:—

Barkerville Polling Division	\$219,061
Lightning Polling Division	79,400
Quesnellemouth Polling Division	68,000
Keithley Creek, including Fraser as far as Soda Creek (approx.).....	100,000
Omineca (approximate)	36,000
Estimated yield from date of calculation to 31st December throughout whole district	50,000
Probable amount taken out throughout the district of which no return was made to collectors.....	47,539
<hr/>	
Estimated total yield.....	\$600,000

"I anticipate a much larger return from next year's work.

"I have the honour to be, Sir,

"Your obedient servant,

"JOHN BOWRON,

"Government Agent.

"To the Hon. the Minister of Mines."

"FORKS QUESNELLE, B. C.,

"November 9th, 1880.

"SIR,—I have the honour to enclose herewith the Mining Statistics for Keithley Polling Division, Cariboo District. The amount of gold obtained this season is a slight increase over the amount of last year, and is satisfactory as showing that for the past few years the yield of gold is steadily on the increase in this section.

"It is very difficult to get at a correct report of the amount of gold obtained from the various rivers and creeks in the Keithley Division, owing to the greater part of the mining being done by Chinese, and they are scattered over a large extent of country and generally working in pairs without any recording of claims, mining licences, or any thing else they can avoid paying, and as they are continually on the move from one place to another during the mining season, it is difficult to keep the run of them; but when they are working in the same section where white men are located, then they work in organized companies, and there is little or no trouble with them. But then it must be admitted that as a general thing they (the Chinese) work ground that under existing circumstances could not be remuneratively worked by white men.

"Owing to the severity of the weather last Winter there was no river mining done, but the heavy snow-fall and cold backward Spring kept up the supply of water in the small streams well into the Summer, quite making up for any shortness on account of no river mining.

"I have no new strikes to report this year from this section, although taking into consideration the small number of white men located upon Snowshoe, Keithley, and Harvey Creeks, there is a considerable amount of prospecting being done by them.

"The yield of gold from Snowshoe Creek this year has been better than any former season, while Keithley Creek still holds out, although showing a falling off from other years. Harvey Creek has not realized the hopes we had of it at one time during the season, yet the companies located on the creek are still hard at work prospecting.

"Quesnelle River, with South and North Forks, has contributed fairly to the season's work.

"The Cariboo Lake Ditch and Mining Company during the greater part of the season were trying to find the most practicable route for their ditch from Cariboo Lake down the North Fork of Quesnelle River. In this enterprise there are considerable difficulties to be overcome, and a heavy outlay of money incurred before any returns can be received; but with the ditch once completed, and a sufficient supply of water obtained, it will, I think, open one of the best hydraulic mining sections in Cariboo.

"I have the honour to be,

"Sir,

"Your most obedient servant,

"W. STEPHENSON.

"The Honourable the Minister of Mines."

"Government Agent.

CASSIAR.

It must be admitted that the result of last year's work in this district has been unsatisfactory. In the first place the pretended discovery by Dan "Bowen" or "Boen," in the Autumn of 1879, of a creek "the richest and most extensive yet discovered in Cassiar," turned out to be a pure fabrication; in the second place the prospecting of the past season has been barren of any good result. It is, however, doubtless true that the ground travelled over has been very imperfectly tested, and creeks hitherto only "scratched," may yet be proved rich. The hills and benches of the old paying creeks will in future attract more attention, and it is probable that the yield for 1881 will not show a further decrease.

"LAKETON, Cassiar, B.C., 20th October 1880.

"SIR,—I have the honour to forward herewith the Mining Statistics for 1880, and beg to submit the following particulars in reference to the past season at Cassiar.

"Exclusive of Indians, there have been about 800 men, miners and others, in the district. Of these some 350 were Chinese.

"Several prospecting parties have been out in different directions, but nothing worth recording has been discovered.

"As far as has come to my knowledge, very few of the prospecting parties that have been out in this district have had an opportunity of testing satisfactorily the many creeks and rivers met with in their travels, the great object of each being apparently to get over as much ground as possible, and to discover what, in miners' phraseology, are designated "sack of flour" diggings,—meaning mines that prove remunerative without any outlay of either money or labour.

"It having now been ascertained that within a radius of 100 miles or more from the present central creeks no such mines exist, it is to be hoped that some effort may be made to work those benches, etc., in the immediate vicinity which, with the expenditure of not a very large amount of capital or labour in constructing ditches, etc., for the purpose of bringing on water, might be made highly remunerative, affording profitable employment to many.

"As I have previously reported, the beds of the old creeks are almost worked out, the returns for this year being very light. The hills and benches, however, are not so, and doubtless when the fact is realized that *easier* diggings are not to be had, the latter will become of more interest to the mining community than they have hitherto been.

"Very fair prospects were taken late this season from some of the few hill claims being worked on Dease and Thibert creeks. In some instances a different lead of gold, seemingly of a richer quality than that taken from the channel of these creeks, has been found.

"The great fraud practiced by Mr. "Dan Boen" upon the people of Cassiar, etc., last fall, caused much disappointment and loss, as numbers not only neglected less promising speculations but expended much labour and money in getting out lumber and in building scows and boats for "Boen's Creek,"—it having been fully believed, to the last moment, by the expectant many that "Boen" would "yet arrive" and pilot them to the promised Eldorado.

"The past mining season having been nearly a month shorter than usual, and the severe frosts of last winter having penetrated to a great depth in the mining ground of many companies, materially affected the output of gold for 1880.

The returns, as closely as can with any accuracy be obtained, are as follow:—

Dease, Thibert, and Defot Creeks, &c.....	\$133,850
McDames Creek section, including Walker's Creek.....	120,000
Liard and Stickeen Rivers.....	10,000

\$263,850

Unaccounted for..... 35,000

Total estimated yield for 1880 \$298,850

"It becomes more difficult each succeeding year to obtain a correct account from claim owners of the amount of gold coming out, the tendency being in all cases to under-rate the respective yields, etc. Next year it is generally expected that our population

will be about the same as it was during this, and the returns, it is confidently believed, cannot be less than the figures given above exhibit.

* * * * *

"I have, &c.,

"A. W. VOWELL,

"G. C. & S. M., Cassiar.

"The Honourable the Minister of Mines."

LILLOOET.

The report from this district includes the bars and benches of the Fraser from Foster's Bar, 25 miles below Lillooet, to the mouth of the Chilcotin River, a distance of over 100 miles, and also Bridge River. The estimate of the total yield made by the Government Agent appears high, and it is possible that he is in error, but the great extent of auriferous ground covered by the report must not be lost sight of, and to the labour of the Chinese scattered up and down Fraser River, must be added that of nearly 300 Indians during the stages of low water in the Spring and Autumn.

A creek emptying into Anderson Lake on its west bank, about eighteen miles from its head, has been found to yield coarse gold in paying quantity. The discovery has not so far proved of much importance, but the country lying between this lake and Bridge River has been known for many years to be gold-bearing, and the finding of coarse gold on this creek may induce further prospecting with more important results.

It is most gratifying that the ditch constructed by Ah Sam & Co., at the great cost of \$31,500, should be considered a good investment. There is room on the Fraser for many such undertakings. It is to be hoped that our own people will realize this fact, and not allow the best locations to be monopolized by Chinese.

"LILLOOET, 23rd November, 1880.

"SIR,—I have the honour to transmit the annual mining statistics for the district of Lillooet for the year 1880. Heretofore mining statistics were only made for the Lillooet section of the district, this year I have included Clinton and Dog Creek.

"Since my last report a discovery of gold diggings has been made by a company from New Westminster District, on a creek which empties into Anderson Lake. The gold taken out is coarse, and sells here at \$16.50 per oz., while Fraser River gold sells at \$16. The discovery was made near the mouth of the creek, and the upper part of it, strange to say, remains still unprospected. Three men went from here last Spring to prospect it, but then the snow was too deep, and they postponed the work for a future occasion, which has not yet arrived. Five men also came from New Westminster District to prospect, but they remained only a short time. The creek consists chiefly of a very rough cañon as far as the prospectors ascended it; veins of quartz were visible. On the portage, between Seaton and Anderson Lakes, Indians are making small wages.

"The water ditch constructed by Ah Sam & Co., is a success. It has cost a considerable outlay to complete it, but it was a good investment. The benches and flats from opposite Bridge River to Horse-Beef Bar will pay good wages for many years to come, many parts of which have already paid them \$6 to the hand.

"The Indians still continue to work the bars of Fraser and Bridge Rivers in their usual primitive mode. The Chinese use sluices when possible. It is astonishing what quantities of gold are taken out of the bars of those rivers.

"Although the mining in this district is chiefly desultory, the total yield is very good, namely, \$81,500. It is impossible to obtain the accurate amount, as some is carried away or remains in private hands. It would be safe to add \$1,000 to the above, making the total amount then \$82,500.

"I have the honour to be,

"Sir,

"Your obedient servant,

"C. PHAIR,

"Government Agent."

"The Honourable the Minister of Mines."

KOOTENAY.

The only subject of interest in this report is contained in the last paragraph, and since its receipt newspapers have reported of the success of the party mentioned as prospecting on the north end of the Kootenay Lake.

" KOOTENAY, Oct. 4th, 1880.

" SIR,—I have the honour to forward herewith the mining statistics for the Kootenay District for the season of 1880.

" On Wild Horse Creek the hydraulic mining claims have as a whole paid better than in former years, with every prospect of their continuing to pay for the future. There has been no new development on this creek.

" There is at present only one company at work on Perry Creek, who are taking good pay out of the creek bed below the falls. The upper portion of this creek is supposed to be rich, and good prospects have been obtained there at different times, but the difficulty of opening up the ground has hitherto prevented it from being worked.

" I hear there is a probability of a company being formed to try and open up this portion of the creek.

" There are a few men mining on some of the tributaries of the Mooyeâ River making small wages.

" There has been scarcely any prospecting done in this district this season, although at present there is a party out on the north end of the Kootenay Lake who are very sanguine of success.

" I have the honour to be,

" Sir,

" Your obedient servant,

" WILLIAM FERNIE,

" Government Agent, Kootenay District.

" *The Hon. the Minister of Mines.*"

YALE.

No return has been received from the Okanagan Division.

KAMLOOPS DIVISION.

Mining in this division is confined to a few Chinamen working on the Tranquille River.

" KAMLOOPS, Nov. 26th, 1880.

" SIR,—I have the honour to enclose you the mining statistics for the Kamloops Division of Yale District.

" Tranquille River, the only stream on which mining operations are prosecuted, still attracts a small number of Chinese, the majority of whom secure but a scanty remuneration for their labour. This is partly caused by being compelled to shovel the dirt into boxes from a depth of five or six feet, there not being sufficient fall in that portion of the river remaining unworked to admit of ground-sluicing.

" The yield of gold for the season, as near as can be estimated, is about \$2,000.

" I have the honour to be,

" Sir,

" Your obedient servant,

" G. C. TUNSTALL,

" Government Agent.

" *The Honourable the Minister of Mines.*"

YALE AND HOPE DIVISIONS.

The report from these divisions is without interest.

" YALE, 22nd November, 1880.

" SIR,—In pursuance with the request mentioned in your circular of the 29th July last, I beg to submit herewith my mining report for the Hope and Yale Divisions for the year 1880.

"I regret to say that the yield of gold for these divisions has not been so great as heretofore, and also that the season throughout the year has not been a favourable one for mining. The unusual quantities of snow which fell during the winter months, together with the lateness of the spring season, were much against mining development.

"The discovery of gold last Autumn on the tributaries flowing into the 'Quo-que-halla,' about twelve miles distant from the town of Hope, gave fair promise of opening out remunerative diggings, but unfortunately the season has not been a favourable one for the prospectors. Although a considerable number of miners had located claims thereon they were prevented from thoroughly prospecting them on account of the continually high stage of the water during the year. Therefore many have returned here and settled into winter quarters,—gone to work in the tunnels of the railway construction, with the intention of again returning to their claims next Spring.

* * * * *

"I have the honour to be

"Sir,

"Your obedient servant,

"WILLIAM TEAGUE,

"Government Agent.

"The Honourable the Minister of Mines."

OMINECA.

This district is increasing in importance, and would seem destined to emerge from the obscurity which has hung over it since the discovery of Cassiar. The thoroughly reliable estimate of Mr. Kenney, the Mining Recorder, places the yield at \$45,800, as against \$36,000 last year; the number of workers remaining the same, viz.: 80 all told.

SILVER.

YALE.

A well defined lead of silver and gold-bearing rock has been discovered at this place, and a certain amount of work has been done with a view to testing its richness. So far as it goes this is satisfactory, but until more is known it is impossible to give any opinion as to the economic value of this discovery. If it be proved that the ore can be worked at a profit, however small, its importance, not only to Yale, but the Province at large, can hardly be over-estimated.

"YALE, November 22nd, 1880.

* * * * *

"Although the events of the past year have not been characterised by any great activity in our quartz lodes, nevertheless the opinion regarding our silver-bearing lodes is gaining more confidence by the recent discoveries, and fine specimens of ore taken from the Queen Silver Mine on Yale Creek are indeed of a very promising character. Every effort has been made by this company, struggling by dint of perseverance, to prove the solution of the silver-bearing deposits abounding in the neighbourhood. Blow by blow the drill penetrates the rock, inch by inch is gained, thereby, slow as the progress is by limited capital accomplished, the day will come and dawn upon us with more cheering rays of success; and as certain as the railroad is preparing the way, so sure will the mineral resources of the Province follow progressively in remunerative enterprise.

"Great importance attaches to the recent discovery of a well and truly defined lode of silver and gold-bearing quartz which shows a quality of ore that is indeed worthy of attention, and may possibly lead to the key of our great storehouse of mineral wealth. The ledge can be traced by compass south of Yale Creek for miles, and the character of the ore found on surface is identical. The lode has not been cut through. The hanging wall has not been seen below surface, but the foot wall so far seen is smooth and has a most favourable appearance, carrying a beautiful gangue with its course; the vein has a uniform appearance and is about 28 feet wide. A short surface tunnel has

been driven to penetrate the lode on Cemetery Creek, about 400 yards distant behind the Cemetery, by Donald McLean, M.D., who has been most energetic in bringing the ore to the notice of San Francisco capitalists. Two assays of this ore made by Mr. Thomas Price of that city resulted as follows:

First croppings, silver.....	\$11.54 to 2,000lb	
Second, six feet deeper, silver.....	16.60	} \$26 to 2,000lb
Gold.....	9.45	

"Two claims are located by representatives of San Francisco capitalists. No doubt this organization is the signal for the resumption of work upon our mineral resources, and that the lode will be developed upon a scale which it justly merits.

"It is understood the parties interested in the 'Mount Hope' and 'Fannie Miller' Companies are establishing a powder factory, about a mile distant from their locations, for the manufacture of explosives, gunpowder, dynamite, glycerine, &c., which will soon be obtained at considerably lower rates than heretofore paid. A saving at least of 35 per cent on this item alone will be a boon in assisting small capitalists in future developments of our mineral resources.

"I have the honour to be,

"Sir,

"Your obedient servant,

"WILLIAM TEAGUE,

"Government Agent.

"The Honourable the Minister of Mines."

COWICHAN.

The "Sterling Mine" is situated on the Koquesaila River in this district, and is about twelve miles from navigation on Saanich Inlet. The lode, which is 9 feet wide, runs east and west, dipping to south at an angle of 63°; it is clearly defined between hanging and foot walls and consists of a series of veins, the matter in these veins and in the quartz between them appearing to be of very different quality. A tunnel, level free, 9 feet wide and 8 feet high, has been run along the vein a distance of 36 feet; as the tunnel advanced, the body of ore—i. e. the number of veins—increased. Various assays have been made from the ore taken out of the tunnel and returns made varying from \$10 to nearly \$100 a ton in gold, silver and lead. One sample, assayed in the United States Assay Office, New York, yielded gold \$6.20 and silver \$69.43 per ton, besides 28½ per cent of lead. Five samples sent to San Francisco averaged \$23 to the ton in gold and silver. It is the intention of the owners to resume prospecting on this mine in the Spring. They do not claim that the ore is of a high grade, but have strong faith in being able, by working large quantities, to make it pay.

The country in the vicinity of the mine has every appearance of containing minerals, but being almost inaccessible has not yet been prospected to any extent. A line for a road has been explored and blazed from the old Victoria-Cowichan road to the mine, a distance of nine miles, which passes through some good agricultural land.

COAL.

It is most gratifying to be again able to report a substantial increase in the output and sales of coal during the past year.

The disadvantages under which our Collieries labour, in exporting coal, are so serious that it is natural and proper for the Government Inspector to follow the example of his predecessor in bringing them to the notice of the public. The Provincial Government are powerless to help, but the Dominion Government have already made one concession in sanctioning a drawback of half the duty on blasting powder. Further appeals to the same quarter are sure to be listened to and carefully considered, and may be successful in obtaining the great boon of other reductions in the tariff on articles used in the working of coal mines and not manufactured in the Province. Every legiti-

mate effort should be used to induce the Dominion Government to lighten as much as possible the great weight which, in competition with American mines, now oppresses this most valuable industry.

The satisfactory report of the Government Inspector, will well repay perusal. The increased sales for "home consumption" is a significant fact worth pondering over by British Columbians.

The following table shows the output of each year from 1874 to 1880 inclusive:—

Year.	No. of Tons.
1874.....	81,000
1875.....	110,000
1876.....	139,000
1877.....	154,000
1878.....	171,000
1879.....	241,000
1880.....	268,000

"INSPECTOR OF MINES' OFFICE,

"Nanaimo, 20th January, 1881.

"SIR,—I have the honour to submit this, my first annual report, as the Inspector of Coal Mines for British Columbia, being the third under the 'Coal Mines Regulation Act.'

"On comparing returns for the year ending 31st December, 1880, with those for 1879, it is gratifying to notice that the coal trade in this Province is steadily increasing.

"At the close of the year 1879 there were about 15,000 tons of coal on hand, and the output of the year 1880 amounted to 267,595 tons, making available total of coal for export and sale of 282,596 tons, the produce of the mines of the Vancouver Coal Company at Nanaimo and Chase River Mines, and of the Wellington Collieries.

"Of the above quantities 225,849 tons were disposed of by shipment to San Francisco, and other ports in California; Portland, Oregon; Seattle, Washington Territory; Ounalaska, Alaska; Acapulco, Mexico; and the Hawaiian Islands; and by fuel supplies for the mail steamships, and calling steamers, being an increase of 34,764 tons over the shipments of 1879.

"Sales for Provincial consumption nett 46,513 tons, being an advance of 6,223 tons upon last year's sales. Thus there is left an aggregate of 10,476 tons to be carried forward to the year 1881.

"I beg to draw attention to the gratifying fact that the quantity of coal raised in 1880, as compared with previous years, fully maintains the progressive character of the coal mining industry of Vancouver Island.

"A glance at the totals for the three years since the introduction of the 'Coal Mines Regulation Act,' will confirm this view. The total output for the year 1878, was 170,000 tons; that for the year 1879, 241,000 tons; and the total output for the year 1880 was 268,000 tons.

"But, while the increased production is satisfactory, it is a matter of serious regret that the disadvantages under which the mine-owners of this Province labour in their competition with American producers still continue. These are (1) the imposition of 75 cents per ton at the United States ports of discharge, and which form the chief branch of the foreign market; (2) compulsory pilotage in this Province; and (3) the heavy duties payable under the Dominion Tariff upon colliery supplies.

"I feel it to be my duty, in the interests of all, to confirm the accurate representation of my predecessor in his last report as to the oppressive bearing of the Dominion Tariff upon the coal industry of this Province, which has to submit to a deduction from earnings of a large sum for Dominion duties upon the artisans' and miners' tools, and miscellaneous articles in every day use at the Collieries, besides which, there are the duties on mining machinery and plant.

"I am able, however, to report a slight diminution of the Tariff, for which the Dominion Government is entitled to credit. Through the exertions of the Hon. A. Bunster, M.P. for Vancouver District, a concession was made in favour of the miner, of a drawback of half the duty payable under the Tariff upon blasting powder actually used by the miners in this Province since the 1st of April, 1880. This concession, small as it is in comparison with what is actually needed, is a boon to the coal miner, who is relieved thereby from what had been virtually a tax of \$1 to \$1.50 per month on his wages.

"In this connection I trust I may be pardoned noticing, on behalf of employers and workmen engaged in the coal enterprise in my district, that the rates of freight preclude the manufacturers of the Eastern Provinces from furnishing our Collieries with supplies, and, there being no immediate prospect of manufactories being established in this Province, it appears manifestly unjust to continue the application of the Tariff, in its entirety, to the coal trade. I would therefore suggest that the Dominion Government should be asked to grant a total drawback of the duties on all articles thus not obtainable either in this or the Eastern Provinces, to such extent as to make their importation as favourable as if they were purchased in Eastern Canada, and said drawback to be applied to such articles as are actually used in the Collieries of British Columbia. Such concession might, in my opinion, be wisely and gracefully made, so as to foster, aid, and encourage our coal industries, which would even then be heavily weighted in the race against American competition by the pilotage dues and the impost on coal entering into the United States of 75 cents per ton.

"The coal mines not in operation during the past year are the Union (which can hardly be called a mine, seeing that very little coal has been taken out), Baynes Sound, and Harewood Company. The machinery is all taken away from Baynes Sound Mine.

"Since 12th June, the other mines have been inspected as follows: Nanaimo Collieries, Chase River Mine, and other mines belonging to the Vancouver Coal Company.

"I have inspected these on ten different occasions, besides four or five times which I did not record when I was looking at the machinery and other works above ground. I always found those mines in good order, and safe to work. Sometimes the brattice was behind a little, but where there is no gas to contend with, instead of nine feet, as in the 'Coal Mining Act,' in my opinion, eighteen feet would be a safe distance to have it from the face; if closer than that, it is always liable to be broken down when blasting. On my inspection of Chase River Mine, there were 42,710 cubic feet of air per minute circulating for the consumption of (51) fifty-one men and three mules, which is an abundant supply. Reporting more fully, I may state in reference to Chase River Mine, that it has been almost entirely free from fire-damp; nevertheless, there are two firemen who examine all the workings, morning and noon of each day. It is very seldom that they ever discover any gas, and, if so, only in small quantities.

"During my personal inspection of this mine, at no time was I able to find any gas; and since my inspections were not confined to any particular times, the manager or other officials did not know I was about to make an inspection until they saw me at the mine. Sometimes I went through the greater portion of the mine, left, and did not see any of them, so that thus I obtained very good evidence of the general condition and usual state of the works. From my own measurements, I found the coal to vary in thickness from four to seventeen feet. This coal is worked out from a slope about 1,700 feet long, with levels to both sides. Those at present working are known as No. 3 and No. 4 levels. On the north side this mine is connected with the Douglas Pit workings, at a point where formerly coal was taken out, but it was found much cheaper to bring it out here. The ventilation of this mine is caused by a large furnace at the bottom of the upcast shaft; the air is conducted on the separate split system. There are four main divisions from the slope, two to each side, or one for each level, where the air is then conducted to and around the face of the workings, and back again to the furnace, where it forms one current. At no time did I find less than 35,000, or from that to 44,000 cubic feet of air per minute circulating in the mine.

"I always found plenty of timber on hand, and with but few exceptions, the timbering is of a substantial nature and executed in a workmanlike manner, and, as far as I could see, it is a safe mine to work in. In these works they are greatly obstructed by 'faults' and 'wants' in the coal, which make the product of this mine less than it would otherwise be.

"Fitzwilliam Mine

"Is being reopened, but there is not much doing at present. The coal which is being worked is close to the slope, and about 1,200 feet from the entrance of the mine; the coal here is two feet six-inches, and of a good quality. This mine is well ventilated by a furnace, and as there are only six miners working here at present, they have plenty of air; but more men from time to time may be employed.

"Douglas Pit.

"At present there is no coal being taken out of this mine, but there are good prospects of finding coal in a rock tunnel which is being drifted out from the bottom of the shaft. The coal from the lower workings goes to the Chase River Mine.

"The Vancouver Land & Mining Co. have conducted extensive explorations throughout their west and south coal fields, and in the Douglas seam, during the year 1880. In the west field a shaft was sunk 114 feet through to the rock, and the Company's valuable diamond drilling machine is now boring through the measures; and a hand-bore, which is down about 370 feet, is also at work at the western part of the field. In both the diamond drill and hand-bores, the prospects are so far encouraging. In the south field, a large area of coal land has been proved by diamond drill boring in different places. South of Chase River a prospecting shaft has been sunk, from which a drift has been carried to the face of the coal, and a slope is now being driven in order to thoroughly test the seam. Steam winding machinery and pit headworks have been erected at the shaft mouth, and there is reason to believe that a large and important coal mine will be developed by the Vancouver Coal Mining Company upon this portion of their property. This Company, I believe, also contemplate opening an extensive mine near the town. The Douglas seam has been explored some distance below the "great pitch" by the diamond drill, and these efforts have been rewarded by the discovery of a ten-foot seam of coal.

"Wellington Colliery.

"In this mine they have been working steadily the greater part of the year. Everything connected with this Colliery is in first class order. The mine is ventilated by a large furnace at the bottom of the upcast shaft; the air is conducted on the separate split system, with the divisions in the slope; the air after being conducted through the airways and round all the workings, returns to the furnace. On my last inspection there were 44,000 cubic feet of air per minute in circulation. This mine being connected with South Wellington Mine, a section of it is aired from that place, and now that it is extensively opened and well ventilated, there is very little gas met with. Since the 10th June I have inspected this mine seven times, but never met with any gas, although in some of the stalls the firemen frequently see a little of it when they are going their rounds of examination previous to the miners going to work. The coal in this place varies in thickness from six to ten feet, and although there have been several accidents during the year, I consider this a safe mine to work in; there is always plenty of timber on hand and lying conveniently for the use of the miners.

"South Wellington.

"Since July last I have examined this mine seven times. The entrance is by a shaft 140 feet deep. The coal is hoisted by two powerful engines which take 25 cwt. of coal at one time. In this mine everything is in the best of order. Travelling roads and airways are alike perfectly safe, and of large dimensions. I endeavoured to find if there was anything to complain of, but there was nothing. This mine is ventilated by a fan erected on the upcast shaft. The fan is 30 feet in diameter, and 8 feet wide, worked by two powerful engines, one at each side, and if anything should go wrong with one, the other would work the fan, and thus there would be very little stoppage in the ventilation.

"On the 5th October, while I was there, the fan was making 89 revolutions per minute, and at that time the quantity of air travelling in the mine was 72,000 cubic feet per minute to supply 90 men and 3 mules. At this time a 'fault' was got in No. 2 level, which was giving off much gas, but now there is very little gas to be found at any time in the mine. The runners who take the coal to the bottom of the shaft, found it very disagreeable because the air was so strong that it put their lights out. They therefore reduced the motion of the fan, and, on my last inspection, it was making about 17 revolutions per minute, and the air circulating in the mine was 42,000 cubic feet per minute, which is ample for all the men employed in the mine. This is the first ventilating fan, on a large scale, in the Province, and is a great benefit to the proprietors in working their coal, and also to the miners, as they get a constant supply of fresh air. Great praise is due to the managing partner for expending so much in the erection of such a machine, and I hope soon to see more of them in use in this Province for the ventilation of the coal mines.

"At present another shaft is being sunk, size 17 feet by 7 feet, in the valley of the Millstone River, where it is anticipated coal will be got early in summer, and when in full operation it will add greatly to the product of this Colliery.

"In the report of my predecessor for the year 1879, mention is made of the discovery of a first-class seam of coal under the estate of Messrs. Sabiston and Horne. This discovery was made by Messrs. John Dick and Jacob Blessing. After going to a large expense they have been rewarded by finding coal in a shaft 40 feet deep. The upper ply of this is five feet thick, and of a first-class quality. There is an in-drift in from the bottom of the shaft 280 feet, which proves the coal to be of a uniform thickness; it is to be hoped that the bottom ply will turn out as good. Some of the coal was sent to San Francisco for trial, and the report from that place says it is as good as any coal which comes from British Columbia. There were about 200 tons brought to Nanaimo for domestic use, which gave general satisfaction. The said coal proves to be the famed Wellington seam, which must extend all down the valley of the Millstone River from the Wellington Mine. This discovery is within two miles of Nanaimo Harbour, with a very easy access thereto, and is a valuable acquisition to the coal fields of Nanaimo.

"Accidents in Nanaimo and Wellington Collieries for the year 1880.

- January 17th.—D. Stantin; slightly burned by an explosion of gas in South Wellington Mine.
 March 23rd.—Henry Westfield, miner, had his head injured by a piece of coal falling on him while at work in the Wellington Mine.
 April 24th.—William Pelligrew, miner, had his arm broken by a piece of coal falling on him while at work in the South Wellington Mine.
 April 26th.—Bonette Caesar, miner, had his collar-bone broken by a piece of coal falling on him while at work in the South Wellington Mine.
 May 4th.—James Williams and William Ferday, miners, were slightly burned by an explosion of gas in the South Wellington Mine.
 May 5th.—Henry Westfield, miner, was hurt by a piece of coal falling on him while at work in the Wellington Mine.
 June 8th.—James Dolan, miner, and Ah Bow, (Chinaman) were killed by a fall of rock from the roof while at work in the Wellington Mine.—[See inquest.]
 July 22nd.—John Gow, miner, was hurt by coals thrown from a shot or blast in the Wellington Mine.
 August 12th.—Charlton Pearson, miner, was injured about the back and shoulders, by a piece of rock falling on him while at work in the new Douglas mine, (Chase River).
 Sept. 18th.—Louis Corto, miner, was slightly burned by an explosion of gas in the Wellington Mine.
 " " John Dickinson, and McGargal, miners, were burned about the face and hands by an explosion of gas in the South Wellington Mine.
 Nov. 8th.—William Herman, Pithead-man, had one of his legs broken by falling from trestle-work at the new Douglas Mine.
 Dec. 23rd.—Ah Frong (Chinaman), had his leg broken and was otherwise seriously injured by the running away of a car on a self-acting incline in the new Douglas Mine. This Chinaman died on 4th January, 1881.

"It will thus be seen that there have been three fatal accidents during the year, viz.: one miner and two Chinamen. Two of the three accidents happened while the men were at work in their stalls, through an error in taking out the props before other supports were put to the roof; hence a fall of rock 30 feet by 12 and 3 feet thick.

"Five serious accidents to miners occurred by the falling of the roof or coal on them while at work in their stall, and one by coals thrown from a shot or blast.

"From these facts, it becomes apparent that the class of accidents—both serious and fatal—resulting from the falling of the roof or coal in the stalls where the miners work, and which being within their control might be averted, is about equal in number to those which result from all other causes combined.

"The accidents of this class can only be lessened by more care and caution on the part of the miners themselves. The special rules under the Coal Mines Regulation Act certainly contain a provision subjecting the miners, while they are exercising their own skill and experience in doing their best to make their working place secure, to the general supervision of the Manager or some competent person acting for him, who, on finding the miners careless or incapable of keeping their stalls safe, can direct them to do what he thinks best for their safety, or he may cause them to leave their places until such time as they may be made safe by other workmen. These remarks apply to the danger of accidents arising from the falling of the roof, when not being properly timbered, or from the coal not being properly spragged where known to be loose; and it will only be through the exercise of care and caution on the part of the working miners

themselves that this class of accidents can be obviated. The Manager or his Superintendent cannot as a rule be more than a few minutes in each stall, but he may prolong his visit where he perceives he is most required; but as workmen are ever liable to danger, therefore more caution ought to be exercised.

"From personal observation, I have always seen plenty of timber put down at the mine for the use of the miners, so that each man can take what length his place requires, and by putting his number on the props the men who run out the coal will know where to take them.

"It will be observed in the list of accidents that there were six persons slightly burned by explosions of gas. Two of these happened about noon. The men went out from their stall for about an hour, and when they came back to work they did not take the precaution to search for gas in their place because they had not seen any for two months previously; and so, on this day, they went in with their naked lights as on former occasions. There was plenty of air going close to the face, but there was a large piece of coal which had been blasted out and where the air could not get behind. Here the gas had collected, and it ignited at the naked light, burning two men on the face and hands. As respects all these accidents, though slight, no blame was attributable to the Companies so far as I could find out.

"It shows that in all mines where gas is found there cannot be too much care exercised in having the place examined with a safety-lamp before any one goes back to his stall after being out for a time.

"I have frequently inspected all the mines, travelling ways, air ways, old waste workings, and all workings in this district, and only once did gas flash in my lamp. That happened in No. 2 level, South Wellington, where there was a 'fault' which was giving off a great quantity of gas. The miners were working by the light of the safety-lamp; the brattice was about two feet from the face, and there were 6840 cubic feet of air per minute going round the end of it; but with all that the gas would show itself in the safety lamp on being held close to the roof.

"The firemen frequently come in contact with a little gas when going their rounds of inspection in the Wellington and South Wellington mines, but previous to their notifying the miners that all is clear and safe for them to proceed to work. Where there is danger known to exist they notify the miners not to go to such places until they are made safe.

"The following is a statement showing the amount of coal raised and the number of fatal and non-fatal accidents that have occurred during the last three years:—

Year.	Tons raised.	Fatal Accidents.	Non-fatal Accidents	Tons raised per life lost.
1878	170,496	3	7	56.832
1879	241,301	12	18	20.108
1880	267,595	3	13	89.198

"Appended hereto are the annual colliery returns.

"I have, &c.,

"ARCHIBALD DICK,

"Government Inspector of Mines.

"To the Hon. *re* Minister of Mines."

NANAIMO COLLIERIES.

Output of Coal for 12 months ending 31st December, 1880.	No. of Tons sold for Home Consumption.	No. of Tons sold for Exportation.	No. of Tons on hand 1st January, 1880.	No. of Tons unsold, including Coal in stock Jan. 1st, 1881.
77,734½ tons.	19,641½ tons.	63,181	10,800	5,712½

No. OF HANDS EMPLOYED.			WAGES PER DAY.		
Whites.	Chinese.	Indians.	Whites.	Chinese.	Indians.
Men..... 229	61	7	\$2 to \$3 75	\$1 to \$1 25	\$1 to \$1 50
Boys..... 15					

Miners' earnings per day..... \$2 50 to \$5.

NOTE.—The number of hands returned does not include Indians or Chinamen working for miners and paid by them.

Name of Seams or Pits:—Chase River, Douglas, and Fitzwilliam.

Value of Plant:—\$110,000.

DESCRIPTION OF SEAMS, TUNNELS, LEVELS, SHAFTS, &c., AND NUMBER OF SAME.

Chase River Mine, called New Douglas, has been working steadily the whole year, excepting stoppage of six weeks during a strike. Hampered by faults, this mine is not producing as largely as heretofore.

Douglas Mine has not been in operation since July last. The coal remaining to the rise of the "great pitch" is being taken out by way of New Douglas Mine.

Fitzwilliam Mine is being re-opened, and is producing a small quantity of coal for shipment.

M. BATE.

WELLINGTON COLLIERIES.

Output of Coal for 12 months ending 31st December, 1880.	No. of Tons sold for Home Consumption.	No. of Tons sold for Exportation.	No. of Tons on hand 1st January, 1880.	No. of Tons unsold including Coal in stock Jan. 1st, 1881.
189,861 13-20 tons.	26,872 tons.	162,668 tons.	4,442 10-20 tons.	4,764 3-20 tons.

No. OF HANDS EMPLOYED.				WAGES PER DAY.		MINERS EARNINGS PER DAY.
Whites.	Chinese.	Indians.	Total.	Whites.	Chinese.	
Men.... 259	266	None.	525	\$2 to \$3 75	\$1 to \$1 25	\$3 to \$4 50
Boys						

Name of Seam or Pits:—Wellington.

Value of Plant:—\$245,000.

DESCRIPTION OF SEAMS, TUNNELS, LEVELS, SHAFTS, &c., AND NUMBER OF SAME.

Six to 10 feet thick; 7 levels working; 1 shaft working, 1 not working and 1 sinking, 1 slope working; 2 air shafts—1 of these large furnace at bottom, the other ventilating fan, 30 feet diameter, driven by pair of engines.

DESCRIPTION AND LENGTH OF TRAMWAY, PLANT, &c.

Ten miles of railway, 5 locomotives, 150 waggons, 5 stationary engines working, 2 engines not used at present, 4 steam pumps; 5 wharves for loading vessels, with bunkers, &c.

DUNSMUIR, DIGGLE & Co.

"WELLINGTON COLLIERY, B.C.,
"14th June, 1880.

"Inquest on the bodies of James Dolan and Ah Bow was resumed at Wellington before Coroner W. R. Spalding and a Jury.

"Archibald Dick, Inspector of Mines, appeared on behalf of the Government.

"Thomas Corlet, miner, having been duly sworn, stated:—I have seen the bodies of the deceased, and I identify them as those of James Dolan and Ah Bow, a Chinaman. On Tuesday, the 8th inst., I was at work in No. 7 Level, next place to where James Dolan and Ah Bow were at work, and at about a quarter to 8 o'clock a.m. James Dolan came to me and asked me to help him to put up a stringer, which I did. I then went back to work, but had not gone to my place when I heard a cave, and immediately returned to see what was the matter. I saw that the roof had fallen, and I could see the hand of the Chinaman, Ah Bow, sticking out from under the fallen timber and stone. Just at this time Mr. James Dunsmuir, the Manager, and Mr. Robert Scott, Foreman, arrived. I assisted to remove the rock, &c., from the body of the Chinaman, and on getting him out found he was dead. We continued removing the fallen matter until we came upon the body of James Dolan, who we also found was dead. We carried the bodies up to the surface, and the medical officer of the mines saw them at once. I consider the cause of the cave was owing to the men having the centre props from under the stringers, which they ought not to have done.

"Rees Evans, miner, having been duly sworn, stated:—I have seen the bodies of the deceased, and I identify them as those of James Dolan and Ah Bow. At about quarter-past 8 o'clock a.m. on the 8th instant I was working in my stall in No. 7 Level when James Dolan came to me and asked if I would help him to put up a stringer. I went as soon as I finished filling my box. James Corlet was there before me, and they had one end of the stringer up waiting for me to come. I assisted in putting it up, Dolan and myself holding it in position while Thomas Corlet fastened it with a wedge, when Dolan said, 'Thank you boys! I can get along now.' Corlet and I then started for our work, and had only got about 10 yards off when I heard the cave. We immediately turned back and called out but got no answer. We tried to go on the lower side of the cave but could not manage it, and at this time the Manager, Mr. James Dunsmuir, and Robert Scott, the Foreman, arrived. We then went to work on each side of the cave to move the rocks, and came upon the body of the Chinaman, Ah Bow, who was quite dead, and a little further on we found the body of James Dolan, also dead. I assisted to bring the bodies to the surface, and the medical officer of the mine, Dr. Jones, saw them at once.

"Robert Scott, Overman of the mine, having been duly sworn, stated:—It is customary in the starting of a heading like the one that the accident occurred in for miners to put their own stringers up, but in this case he (witness) had made arrangements with the deceased to pay him for putting the stringer up as one had broken before.

"After a few minutes' deliberation, the Jury returned a verdict of accidental death, caused by taking out the centre props from under the stringer."

Read as is





